THE Soybean Digest

ASA Vice President John Hartz, Jr. (See page 31).

Official Publication

AMERICAN SOYBEAN ASSOCIATION

VOLUME 10 • NUMBER 5 MARCH • 1950

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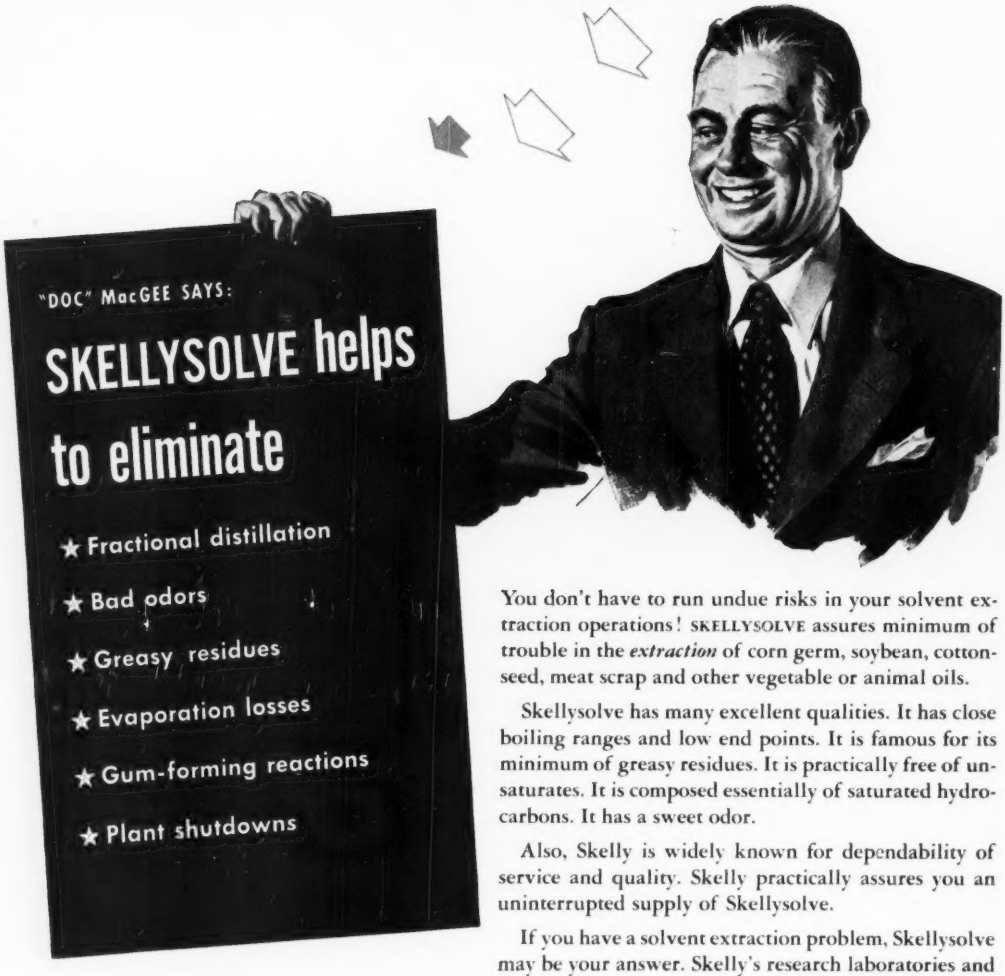

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IN THIS ISSUE

	page
Editor's Desk	4
Iowa, Illinois, Ontario Contests	6
Missouri Seed Show	8
Seek Better Beans in Delta	8
Development of New Soybean Varieties — J. L. Cartter	13
Recommended Variety Map	15
The Soybean Industry in Europe — Geo M. Strayer	16
Purina's New Iowa Falls Plant	24
Urges Speedup in Flavor Research	28
Tri-State Processor Meetings	29
Big Place for U. S. Fats Abroad	30
Oilseeds from Farm to Market	30
Jake Hartz Jr., of Stuttgart, Ark.	31
1949 Variety Test at Dortch Farms	32
Soybean Research Projects — J. W. Calland	34
Publications	42
Grits and Flakes	46
Washington Digest — Porter M. Hedge	54
Will There Be a Bean Surplus in 1950?	56
Market Street	57
In the Markets	58
Letters	62

EDITOR'S DESK

YOUR CONGRESSMEN ARE ON RECORD

This is a political year. It is time to count our friends in the Senate and the House of Representatives, as well as in state offices, and vote accordingly. One measure of determination of the friends of the soybean industry was recently established in the Senate—the vote on HR 2023, the margarine repeal bill.

Ohio's Senator Taft proved himself a friend of the soybean industry, voting favorable to us on all except one count. Senator Bricker voted to kill the Wiley-Gillette amendment, then failed to vote on the six remaining proposals.

Indiana's Capehart and Jenner can not be too proud of their records. Both voted six times against free enterprise on margarine, but when the final vote came after all amendments had been defeated in spite of their votes, both men voted favorable to repeal. In other words, they tried to cripple or defeat, but when they saw they were out numbered they then jumped on the bandwagon. Indiana has little reason to be proud of either.

Illinois should rightfully be proud of her two Senators, Lucas and Douglas. Both voted right on every count, proved themselves consistent friends of the soybean farmer. They are to be commended!

Your editors, located in Iowa, hesitate to mention their state. However, Senator Gillette, a co-sponsor of the Wiley-Gillette amendment which would have prohibited yellow margarine in inter-state commerce, recognized defeat when his amendment was voted down and from that time on voted favorable to the soybean industry. Senator Hickenlooper, self-professed friend, was consistent—he voted on the wrong side of the ledger on every one of the seven votes taken! His position, in view of his previous commitments to us, is hardest to explain away of any member of the Senate.

Minnesota's Humphrey and Thye were against us, but Humphrey did vote against crippling amendments while Thye did not even do that.

Missouri's Donnell was another consistent voter—on the wrong side of the ledger on each of seven votes. Kem voted right on the last four ballots after he saw the Wiley-Gillette and the excise tax amendments were doomed.

We should take stock of our members of Congress—both the House and the Senate—and see that when June primaries come around men who are awake and aware of the interests of the soybean industry are selected. Certainly if we do not take an interest in those elections and the men who will represent us no one else will.

TAKES A PLAN TO EXPORT SOYBEANS

Foreign trade is going to be essential, through the next decade, to a sound American agriculture. To preserve peace we must place our agricultural raw materials and their first-step products in the food-hungry markets of Europe and Asia. To do so we must take something in return—products which those nations have to offer and we can use to advantage.

Now, through the Marshall Plan, we are financing our own exports. It is clear that maintaining the volume of our foreign trade after ECA ends will be important to the peace and security of the world. Retaining those foreign market outlets will be vital to our agricultural prosperity. Failure to retain those markets will seriously jeopardize our entire farm program.

The soybean industry must begin conscientious and intelligent steps toward a program of financing agricultural exports as a necessary part of the problem of balancing United States trade. That must be worked out within the general framework of the overall United States foreign policy and domestic finance policy. We can never hope to maintain the current level of U. S. exports after ECA funds are no longer available without an expansion in our purchases of goods, services and investments. Read Dunn, director of foreign trade for the National Cotton Council, says we must expect to take about 60 percent more goods than at present—that we must spend for travel in foreign countries, goods imported from those countries, and investments made within their borders, about $6 billion dollars per year if we are to maintain our present levels of agricultural exports. He is probably as close to an accurate figure as is humanly possible.

To sell soybean oil, soybean oil meal, lecithin, soy flour and soybeans we must arrange our national economy to accept goods in return. No one else is going to arrange that for us. We need, in the soybean industry, a council or organizational body representing all segments of the industry, charged with the responsibility of the protection and furtherance of these markets and given the authority to take such steps as are necessary to follow through and see that the job is done.

It is a big job—one which is hard to comprehend—but one which is vital. Today is not too early to start planning.

CHANCE TO GET OFF ON RIGHT FOOT

Rather heavy acreage increases in soybeans are to be expected in some areas this year. In some of those areas there will be in adequate supplies of seed of adapted commercial varieties. Seed producers and dealers should be careful in making variety recommendations. Unless they do so there will be many unfortunate experiences in soybean production—low yields, poor quality, consequent aversion to the crop.

Even with the best of available varieties the average yields in new production territories, where much of the acreage increase will come, will be well below the national average. Let's use the greatest of care in introducing soybeans to new growers, thus keeping the name of SOYBEANS in good standing wherever possible.

SOMETHING WE MIGHT THINK ABOUT

The American farmer, including the growers of soybeans, should be doing some serious thinking about where we are going with our farm programs. This is an election year, and the Brannan-Kline debate at Des Moines recently focused the spotlight on agriculture. Through a period of years we have evolved farm programs designed to fit the immediate need. Now we must think of the long-time pull—and where it will lead us.

And in considering those programs we should keep in mind that soybeans are different from most crops—that they contain high percentages of the two most scarce food commodities in the world today—and that there is good possibility the soybean crop may fare better without benefit of acreage controls and price supports. Five years from now we might find ourselves in better position if we do not try to maintain high prices and restricted acreage. It is food for thought.

IOWA, ILLINOIS, ONTARIO CONTESTS

Albert Horras, Richland, Iowa, soybean producer, was first place winner in the Iowa Master Soybean Growers Contest for 1949.

Horras won the contest with 5 acres of the new Adams variety that averaged 46.98 bushels per acre. He was awarded first place money, the title of Iowa Master Soybean Grower and the John Sand trophy at the meeting of the Iowa Corn and Small Grain Growers Association at Ames Feb. 15.

Horras' yield is somewhat under the 49.55-bushel yield of the 1948 champion, Leo Mortenson of Spencer. Mortenson won with Earlyana.

Second place went to John Eichmer, Indianola, with Lincoln. His yield was 45.46 bushels per acre.

Third place winner was Fred Stuekerjuergen, Salem, with Adams. His yield was 45.06.

Other district winners and their varieties and yields: Paul McCleary, Linden, Lincoln 42.75; E. Glen Bailey, Mystic, Adams, 34.55; Harold D. Yanney, Renwick, Hawkeye, 38.02; Clarence Nelson, Jr., Rt. 2, Boone, Hawkeye, 30.73; E. H. Gard, Early, Hawkeye, 43.55.

Forty-two contestants completed six district contests in 1949. Of these, 12 had yields of over 40 bushels. Seven of these 40-bushel yields were made in district 9, where the state champion lives.

The average yield of the 42 contestants was 36.11 bushels, compared with the state average yield of 22.9 bushels.

Lincoln was the most popular variety with Iowa contestants in 1949, with Hawkeye a close second. Sixteen grew Lincoln, 14 Hawkeye. Seven grew Adams and five Bavender Special.

The contest was co-sponsored by the Iowa Soybean Processors Association and the Iowa Corn and Small Grain Growers Association.

State Champion Horras has been growing soybeans since 1933—from 30 to 200 acres per year. He grows them on bottom land, and inoculates.

Horras plowed a crop of clover down on the championship field in 1947; and put in corn that year and in 1948, following with beans in 1949.

He planted the beans in 40-inch rows, seeding at the rate of 1 bushel per acre.

Illinois

Martin Manning, Ladd, was winner of the ninth annual Illinois 10-Acre Soybean Growing Contest. He was presented with the championship trophies, a silver pitcher and round silver serving tray, at Illinois farm and home week.

Manning's yield, 46.72 bushels per acre, was considerably under the 54.2-bushel all time record set by Aden Danielson, Leland, the 1949 yield champion. However, Manning's total score, 89.91 out of a possible 100, was higher than the 88.94 points scored by Danielson last year.

The Illinois contest scores on yield, cost of production, quality of seed and oil content in the following percentages: 40, 25, 15 and 20 respectively.

Verle Steele, Table Grove, second place winner, also placed second last year, and was state yield champion in 1946. His yield was 45.36 and his score 89.89. Third place winner was L. Parke Kerbaugh, with a yield of 42, and score of 86.17.

The champion scored highest in yield and quality, which scored 93. Kerbaugh, the third place winner, had highest oil content, 22.6 percent.

Dewey T. Beattie, Sparta, had the lowest production cost, $326.07 for the 10 acres.

Ontario

Winner of the 1949 Ontario Soybean Yield Contest was Rosaire Rivait, Rt. 1, Comber, in Essex County, K. E. Fallis, field man for the Ontario Department of Agriculture has announced.

Rivait won with the Lincoln variety planted solid. His yield was 57.63 bushels per acre, oil content was 20 percent and total score was 143.06 points.

Contestants were scored on protein and oil content, appearance and yield. The contest was sponsored jointly by Toronto Elevators and Victory Mills, Ltd., both of Toronto. The three high place winners in each of four district contests were entered in the district contest.

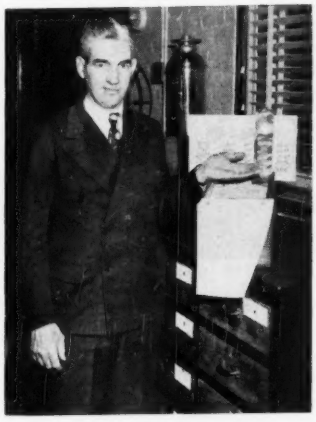
Second place winner was A. E. Mann, Rt. 2, Fletcher, Kent County. Mann won with Mandarin in 22-inch rows. His yield was 54.31 bushels per acre, oil content was 18.2 percent, and total score was 142.09 points.

Third place winner was Allistair Littlejohn, Wallacetown, Elgin County. He grew the Capital variety in 22-inch rows. His yield was 53 bushels, his oil content was 19 percent and total score was 142.08.

All place winners in Essex County planted their beans solid. But average yield of all solid plantings in the district was low and most solid planting entries were thrown out on the basis of yield score.

YIELD CHAMPIONS

ALBERT HORRAS



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WINS MISSOURI SEED SHOW

With 54 samples of oil beans on display at the Missouri Good Seed Show and Short Course held in Sikeston, Mo., Jan. 25 and 26, farmers of that state were made aware of the importance of soybeans as a crop in Missouri. In only one other class—that set up for cotton—were there as many exhibits.

The top sample of soybeans was shown by B. W. Ablen of Florissant. Ablen's sample did not include a single piece of foreign matter, a shriveled or cracked bean, or even an odd-size bean. It also germinated very high.

Second place in the soybean class went to Fred Moser of Sikeston. Moser, too, had an outstanding sample of soybeans.

The Missouri Seed Improvement Association is the certifying agency for all seeds in Missouri and promotes such activities as the show to encourage a greater number of farmers to use seed of top quality.

More than 1,000 farmers attended the show in Sikeston this year. Sikeston is the very heart of the greatest seed producing area in Missouri, a title rightly claimed by virtue of the fact that the two counties—Scott and New Madrid—from which that city draws most of its farmer trade, have more certified seed growers than any other two counties in Missouri.

For the first time 4-H club members in crop projects also exhibited. Of the 33 samples exhibited by 4-H club members, 13 were soybeans.

The Missouri Seed Improvement Association awarded a total of $600 in cash premiums. The Sikeston Chamber of Commerce and the farmers in the Sikeston trade area sponsored the show.

The Association reelected all officers, with W. A. Cochel, Parkville, serving as president; W. L. Davidson of Kennett, vice president; C. A. Helm, Columbia, secretary; and W. E. Aslin, Columbia, assistant secretary.

Champion exhibitor and some of the men responsible for the Missouri State Good Seed Show at Sikeston. From left to right: Carl Luper, Sikeston, district seed inspector; A. J. Renner, Sikeston, show secretary; W. E. Aslin, Columbia, assistant secretary of the Missouri Seed Improvement Association in charge of inspection throughout the state; B. W. Ablen, Florissant, whose exhibit won the championship; C. A. Helm, Columbia, Association secretary; W. A. Cochel, Parkville, Association president; and W. S. Davidson, Kennett, vice president.

An attractive display with soybeans flowing continually from the corner of a sack drew special attention. Cypress Land Co. of Jaywye, largest producer of soybeans in southeast Missouri, was responsible for that attraction.

COUNTYWIDE BEAN MEETINGS

A series of countywide meetings to discuss alternate crops for acreage taken out of cotton in 1950 has been announced by L. H. Moseley, county agent at Greenville, Miss.

On a recent program were E. E. Hartwig, coordinator for U. S. Department of Agriculture's soybean breeding program in the Southern states, Stoneville, Miss.; Don H. Bowman, in charge of corn research at the Mississippi Experiment Station; and Perrin Grisson, in charge of fertilizer research on corn and soybeans at the Delta Experiment Station, Stoneville.

A number of farmers with outstanding records in growing soybeans and corn gave talks. They included Torrey Wood, Jr., Hollandale; W. C. Boland, Estill; Jeff Davis, Pettit; and Jimmie Walker, Stoneville.

GOAL: BETTER BEANS IN '50

Better quality soybeans for 1950!

This was the goal set up by the supplemental crops committee of Mississippi County, Ark., at a meeting at Blytheville Feb. 17.

Action is being taken to combat criticism of many of the beans coming from the Midsouth, especially for export purposes.

J. N. Smothermon, committee chairman, was in charge of the meeting. He was assisted by Keith J. Bilbrey, North Mississippi County agent. The supplemental crops committee is an expansion of the

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MINNEAPOLIS 1, MINNESOTA

"They All Go for It."

North Mississippi County planning committee that has been active for a number of years.

Steps that the committee plans to take to insure better quality soybeans in 1950:

1—Convince buyers that they should buy on grade only and refuse beans that are too poor.

2—Hold a combine school before harvest to give instruction on the proper setting of combines.

3—Send men out in the field to make sure that combines are set correctly.

The committee also will encourage building of both on-the-farm and elevator storage to make more orderly marketing possible.

Paul C. Hughes, field service director for the American Soybean Association, Hudson, Iowa, discussed soybean storage and cleaner soybeans as a means of holding the export market.

During the past activities of the soybean planning committee have resulted in variety tests, yield contests and a general improvement in soybean production in Mississippi County. The expansion of the committee is aimed at improving other supplemental crops, according to Bilbrey.

The 19-member committee is composed of chairman Smothermon, George Hale and C. F. Tompkins of Burdette; H. C. Knappenberger, Charles Brogdon, Floyd C. Crouch, J. L. Gunn, E. B. Woodson, Fielder Peery and A. C. Owens of Blytheville; Vance Dixon of New Liberty; Virgil S. Johnson, J. L. Edwards, John Bearden and Earl Wildy of Leachville; John Stevens, Jr., of Dell; H. L. Halsell of Promised Land; J. F. Harris of Lost Cane; and William Wyatt of Yarbro.

TESTS AT HALE SEED FARMS

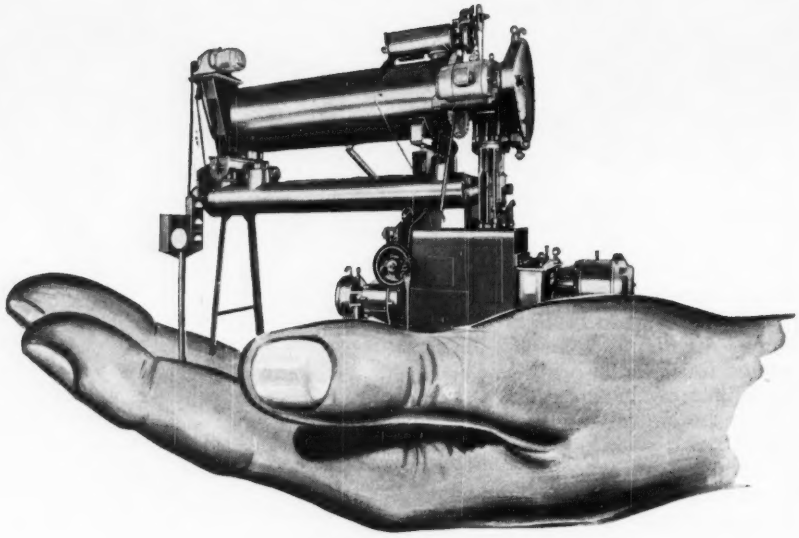
Hale Ogden 2 led all other varieties in yield in the 1949 variety test as well as for a 3-year average at Hale Seed Farms, Burdette, Ark., reports G. A. Hale.

Hale Ogden 2 is a selection from Ogden made by Hale in 1944.

Dortchsov 2 was second in the 1949 yield test and the 3-year average at the Hale Farms.

Following is the complete report of the tests:

	BUSHELS PER ACRE			
VARIETY	1947	1948	1949	3-yr. Av.
Hale Ogden 2	21.5	47.7	38.5	35.9
Dortchsoy 2	19.7	39.2	37.3	32.1
Ogden	20.0	40.2	33.1	31.1
Burdette 19	17.9	38.6	30.6	29.0
Ralsoy	17.0	31.9	22.4	23.8
Dortchsoy 7	12.3	32.9	23.8	23.0
2-43-A		39.1	31.9	



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DEVELOPMENT OF *New* *Soybean Varieties*

An Address before the Peoria, Ill., Soybean Conference

By J. L. CARTTER
U. S. Regional Soybean Laboratory

THE EXPERIMENT stations of this country have been breeding soybeans for nearly half a century and a number of good varieties have resulted. The development of new strains in early years came mainly through selection from introductions obtained from the Orient. This work resulted in the development of Dunfield, Illini, Manchu, Richland, and many others.

We are finding it increasingly apparent in research work, however, that most advances now come through the combined efforts of many workers in a field. As it has been said, the development of a flower is not the result of a single day of sunshine but the cumulative effect of many days. Equally true, the development of new and improved crop varieties is usually the result of many years of research by many workers cooperating in a well coordinated program.

New, improved soybean varieties are now produced largely by hybridization. Most of the crosses that are being developed through the cooperative program are made at four or five breeding centers in the region, and the better of the segregating plant populations are distributed in an early stage to all the interested experiment stations so that further selection can be done locally in the area for which the strains are being developed.

In connection with the evaluation of new strains, the establishment of an analytical section in the Laboratory has permitted the use of chemical analysis as a tool in the breeding work. In the past it has been customary to make selection only for yield, lodging resistance, seed quality, maturity, and such other agronomic factors as could be observed. The use of chemical analysis has increased tremendously the opportunities for developing varieties that are high in oil content and superior for industrial use as well as improved in yield.

After strains produced through the breeding work have become sufficiently fixed as to type, the best of them are placed in preliminary nurseries. The best of *these* are then entered in what we have designated as the "Uniform Soybean Tests" which have been set up to give a critical evaluation of the top strains that are being developed.

The varieties and strains we are studying in these Uniform Soybean Tests are divided into maturity groups, and starting with the very earliest, adapted to North Dakota and Minnesota, we have designated these as the Uniform Test, Groups O, I, II, III, etc., extending down to Group VIII which is composed of very late strains adapted to the southern part of the Gulf Coast Region. In our annual reports, which are available to all of you, we have classified the strains according to these maturity groups.

Accomplishments

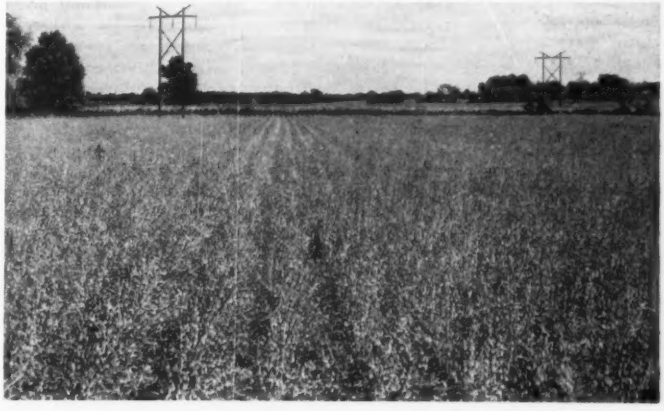
In regard to accomplishments of the breeding program, I would like to mention first some of the progress of the cooperative work in the southeastern states. Results from the Uniform Tests in 1943, the first year of the southern work, showed Ogden, a variety developed several years ago by the Tennessee Station, to be consistently high in yield and oil content when grown throughout a large part of the upper South where strains of Group VI maturity are adapted. Seed of the strain has been increased rapidly in the last few years, and now Ogden is one of the principal varieties in that area.

Roanoke, a strain about 10 days later than Ogden, has been developed by the North Carolina Station in cooperation with the Laboratory. This strain of Group VII maturity is also high yielding and high in oil content, and performs best south of the Ogden area. Acadian in Group VIII is also high in yield, fair in oil content, and well adapted in Louisiana.

Until recently there has been practically no soybean production along the Gulf Coast of the United States due to the poor yields and generally poor seed quality obtained from the older varieties that were available. Last season selections from crosses involving introductions obtained from the region of Nanking, China showed remarkably good seed quality, and yields that are certain to stimulate interest in soybean production in this area.

Turning to the North Central states we now have a number of

A Worthington, Ind., field of the Wabash variety.



improved strains of different maturities.

Three strains from Canada are leading in the Uniform Test, Group O; Capital, Mandarin (Ottawa) and Montreal Manchu. Capital, developed at Ottawa, Ontario, was tested widely from Oregon to New York for the first time in the Uniform Tests in 1946 and proved to be high in yield and oil content. This strain, being earlier, taller, and higher in yield and oil content than Mandarin (Ottawa) or Montreal Manchu should be valuable in the northern tier of states and acreage of Capital should increase. We have been cooperating informally with plant breeders in Canadian experiment stations for a number of years and the exchange of information and soybean selections has been mutually helpful.

New Strain

Another promising strain for the northern states, A6K-937, a selection from Mukden x Richland developed cooperatively with the Iowa Agricultural Experiment Station, is somewhat earlier than Earlyana, stands up much better, yields more, and has a higher oil content. It should be very useful in northern Iowa, southern Minnesota, Wisconsin, Michigan, and northern Indiana if performance in experimental trials is substantiated by field plantings. The new strain, over a 4-year period (43 tests, 8 states) has yielded 1.7 bushels higher than Habaro with an average oil content 1.2 percent greater. Due to the higher yield and oil content it should replace Habaro acreage in northern Iowa and southern Minnesota rapidly as seed stocks become available. A new strain does not stay at the top very long however, with several plant breeders entering new lines in the cooperative tests. Even last year, 13 entries in the preliminary test, Group I, exceeded the new variety in yield and one of these exceeded it in oil content also.

Monroe, from a cross Mukden x Mandarin, has been developed cooperatively by the Ohio Agricultural Experiment Station and the Laboratory, and has been released as a strain to precede wheat in northern Ohio. It yields nearly as much as Earlyana, is more lodging resistant and matures 5 days sooner. Farmers are willing to sacrifice some yield in this case to get the soybean crop harvested earlier.

The variety Hawkeye, another selection from the cross Mukden x Richland, developed cooperatively by the Iowa Agricultural Experiment Station and the Laboratory, has been yielding only slightly under Lincoln in the Group II test, has averaged 4 to 7 days earlier, and has ranked better in lodging resistance and equal in oil content. It is rapidly replacing Richland in its area of adaptation, as well as some of the Lincoln acreage where earlier maturity is desired. You may wish to know what change in composition might be expected in soybean seed coming from an area in which Richland is replaced by Hawkeye. A 6-year average in the Uniform Test, Group II, (111 tests, 9 states) shows the seed of Hawkeye nearly 1 percent higher in protein and 0.5 percent higher in oil content than Richland. No change would be expected in iodine number of the oil as the 6-year averages for Hawkeye and Richland are 128.3 and 128.5 respectively. These same tests give Hawkeye a substantial yield advantage of 3.8 bushels per acre over Richland. On the other hand, where Hawkeye replaces Lincoln, little difference in yield or oil content will be observed, but the iodine number of the oil would drop about seven points. Lincoln is one of our higher-iodine-number strains, whereas Hawkeye is one of the lowest.

J. L. CARTTER

Lincoln is probably the most outstanding variety developed to date. This strain, originating from a natural cross between Mandarin and Manchu, was developed cooperatively by the Illinois Station and the Laboratory, and was released for increase simultaneously by several of the stations in the Cornbelt. Lincoln has proved outstanding in yield and oil content in its area of adaptation, and to a great extent has replaced such varieties as Illini, Dunfield, Mukden, Manchu, and others of a similar maturity. The variety Lincoln at present is grown on 85 percent of the soybean acreage of Indiana and Illinois, and 75 percent of the acreage in Iowa. A 5-year average in the Uniform Test, Group III, (94 tests covering 10 states) shows Lincoln 1.2 percent higher in oil than Illini and only 0.4 percent lower in protein. In these tests the iodine number of oil from the Lincoln variety was not greatly different from Illini but nearly seven units higher than oil from Dunfield.

Adams, a selection from the cross Illini x Dunfield, has been developed cooperatively by the Iowa Agricultural Experiment Station and the Laboratory and is now in commercial production. Adams has averaged slightly higher in oil content than Lincoln, about the same in maturity and slightly superior in lodging resistance. Adams seems particularly adapted to central and southern Iowa, outyielding Lincoln in that area. However, in Illinois and Indiana Lincoln has maintained a substantial lead in yield over a period of years.

Wabash, from a cross Dunfield x Mansoy, has been developed cooperatively by the Purdue Agricultural Experiment station and the Laboratory, and was released for production in the spring of 1949 by the states of Indiana, Illinois, Missouri, and Kansas. Wabash is of Group IV maturity, being about 2 weeks later than Lincoln, and is well adapted in southern Indiana and Illinois, central Missouri and southeastern Kansas. Wabash has outyielded Chief, Patoka, and Gibson, and has a higher oil content. Due to higher yield and oil content it should replace these strains in most of this area as seed stock becomes available.

What Are Prospects?

The research worker is never satisfied in his search for better types, and plant breeders are making new crosses and testing several thousand selections each season in a steady search for improved strains. As new selections are entered in the yield tests, the types that have not proved their worth are dropped. We would therefore expect over a period of years an increase in average oil content of the strains that are entered in the Uniform Tests. When adjusted for seasonal effects, the net gain in oil over the period from 1941, the first year the reports were published, to 1948 has been 1.3 percent for Group II, and 0.9 percent for Groups III and IV.

For several years after Lincoln was released it was difficult to find any strain showing appreciably higher oil content; now, however, we have several that are better, and

one that has analyzed over 1 percent higher. The new type is being used in crosses to secure further improvement in oil along with improvement in agronomic desirability.

Yield continues to be of prime importance. Lincoln led the group II and III Uniform Tests in yield for several years, but is now being outranked by two or three new strains. The difference is even greater in the preliminary yield nurseries where last year 11 new selections exceeded it in yield in a test involving a four-state trial, though all of these strains were a few days later in maturity, a very important factor in varietal evaluation. Much more testing is necessary to prove the superiority of these new selections as a strain may be high one season and low the next, due to climatic or seasonal differences. This is the reason why new varieties are studied carefully over a period of years at many different locations before they can be released for production and their area of adaptation recommended with reasonable certainty.

Disease Resistance

Breeding for disease resistance in soybeans deserves mention. Differences in susceptibility to a number of leaf diseases have been observed. Among these diseases are bacterial pustule, bacterial blight, wildfire, frogeye, brown spot, and downy mildew. The fact that Hawkeye carries resistance to bacterial blight may make it doubly important in future crosses, in view of its excellent agronomic record. The south-

(Continued on page 31)

Recommended Varieties

New, better varieties are coming into the picture rapidly. This map shows the latest recommendations of agronomists at the state experiment stations. For best results do not plant varieties north or south of their recommended latitudes.

THE SOYBEAN INDUSTRY IN EUROPE

By GEO. M. STRAYER

● *From a talk by the American Soybean Association Secretary-treasurer before the recent soybean conference at Peoria, Ill. Based on his recent ECA-sponsored trip to Europe.*

IT IS ALWAYS easy for one who has visited an area for a short time to solve all the problems of that area. Yet a *little bit of knowledge* is a very dangerous thing—many times more so than *no* knowledge. I do not pose as an expert on foreign affairs, nor on solving all the problems of Europe. They have developed over hundreds and even thousands of years, and the very best I could hope to do would be to explain some of them to you. I shall attempt to do that—as they pertain to soybeans and the soybean industry.

So that you may be acquainted with the background of my remarks I would like to first tell you how Jack Cartter and I got ourselves involved in the trip which we made during September, October and November, and what lay behind it. That knowledge will help explain what we did.

When the ERP or ECA appropriations bill was passed in the first session of the 81st Congress there was provision made for certain funds which were to be used in supplying technical assistance. Those funds might be used to bring technical men from countries participating in ECA to this country for training, for study, or for travel to acquaint them with research and practices in any approved field. Or, those funds might be used to send technical men from this country to European countries to make studies, and advise and consult with government and research men.

Germany, blessed with the same problems as much of the remainder of Europe, finds herself in the position of having totally inadequate supplies of fats and of protein. She must have larger quantities of both for human feeding. She must get them just as cheaply and efficiently as possible.

One of the leaders of agricultural research in West Germany, Dr. Wilhelm Rudorf, was brought to this country in the late Fall of 1948 and sent to a number of the agricultural colleges, research stations and to Washington to observe agricultural research and its application in the United States. Dr. Rudorf is a plant breeder as well as an administrator. Upon his return to Germany he requested samples of a large number of American varieties of soybeans for testing in Germany. Those soybeans were supplied to him, through military government, by growers scattered throughout the production areas, as well as by Jack Cartter and other federal and state soybean breeders. The soybeans were planted in a number of different locations in Germany, alongside the German varieties which were available.

Late in August I received a phone call from the technical assistance division of ECA in Washington. The German government had requested that two men from the United States be sent to Germany to study the behavior of our soybean varieties under their conditions, to make recommendations to them on the possibilities of their producing soybeans in commercial quantities for use as a source of fat and protein for human feeding, and to study the utilization of soybeans in Germany and make recommendations on increasing their efficiency.

I was told that J. L. Cartter of the Bureau of Plant Industry had agreed to go and that they wanted someone from the industry for the second member of the party. I agreed to go. We met in Washington, were given our necessary papers and instructions, and on Sept. 17 we headed for Europe by plane. We visited or touched 10 countries before our return. The major portion of our time, however, was spent in Germany. Thus most of my remarks will pertain to that country.

Strayer (left) and Sven Holmberg in front of seed house on the Algot Holmberg experimental farm at Norkopping, Sweden. Sven and his brother Pehr operate the farm where much experimental work with soybeans and other crops is in progress.

World Shortages

There are two major food commodities which are short in world supply today. They are fats and oils and proteins.

First, let's review briefly the world supply situation as it pertains to fats and oils. Adequate diets throughout the world would demand about 1,900,000 tons more fats than were produced in 1949. The tropical sections of the world, always the heavy oil producers, have reduced their production. Supplies of copra and coconut oil have been reduced by war, tropical storms, and changes in governments. In addition, some of

—Photos by J. L. Cartter

Air view of the Koblenz-Wiesbaden farming area of Germany. The small patchwork fields (most a fraction of an acre) typical of the area make modern farming methods an impossibility.

the peoples of those production sections are demanding higher wages and more pay, pushing the comparative prices on those commodities upward. At the same time that higher pay is enabling those peoples to maintain more adequate diets and thus consume greater quantities of their own production of fats and oils. Thus, smaller quantities of the total production are reaching export markets.

In Europe there has been a concerted effort on the part of all countries to build up nationalistic production of fats, even though it could not be done on an economical basis. North European countries have been endeavoring to meet their own needs of vegetable oils through the production of rapeseed. In Sweden, Holland and Germany we observed heavy plantings. In Sweden we learned that this country, which previous to the war had been a heavy importer of fats, was now largely self-sufficient because of rapeseed production. This production is heavily subsidized by government or it could not exist. Dollar exchange is almost non-existent. A pound of fat produced through rapeseed probably costs them two or three times the cost of a pound of our soybean oil. But they have rapeseed, and they do not have dollars. So long as the present exchange situation exists, the Swedes, Dutch, Germans and others will be forced to produce vegetable oil crops in some quantity even though it is uneconomical for them to do so.

South Europe, around the Mediterranean area, relies quite largely on the olive crop for their vegetable oils. In 1949 the olive crop was badly damaged by the drouth, making supplies totally inadequate.

The peoples of Europe need more fats and oils—supplies available either through rationing or outside rationing are totally inadequate. Even more, they need larger supplies at cheaper prices. Their own domestic production in most cases is costing them prices well above world price levels—if they had the means of buying on those markets. Soybean oil from the United States is the cheapest major source of edible oil available in the world markets today—hence the interest displayed by European countries in our product.

Not only is the diet of the average European short in fats, but it is also totally inadequate in protein. In Germany, for instance, the average working man gets only about one-half to three-fifths the amount of protein he should have to maintain body strength and do a hard day's work. This level is well above that of 1946, 1947, or even 1948, but even yet has a long way to go. The European countries can never hope to produce sufficient quantities of animal proteins to supply their needs. They must use vegetable proteins, and they must secure those proteins at the cheapest possible prices. They have used soy protein to some extent over a period of years. The Germans used soy flour and other soy protein products long be-

A soybean variety developed by Dr. Wilhelm Riede (center) in the University of Bonn experimental plots. At left is Strayer, at right Dr. William Bening of Frankfort, who accompanied Strayer and J. L. Cartter in Germany.

Experimental plots on the farm of Herr Schulze-Bruning at Kinderhaus near Munster, Germany. American and German varieties are under test here. In this sandy area soybeans compared with other crops as well as any place in Germany. Left to right, Mr. Roettger, director of agriculture for the Munster Chamber of Commerce, Strayer, Bening and Schulze-Bruning.

fore we adopted them here in the United States. But soy protein during the war years has come to be regarded as ersatz or substitute material, and for that reason is in disfavor with large groups of Europeans today. They do not realize its true value and potential worth. In the natural attempts to get away from substitute materials the true values of the soybean for human feeding have been victims of the mad rush away from those articles people were forced to use during the war years.

Let me clarify a few points pertaining to the position of European countries on the face of the globe. Most people do not realize, unless they are students of geography, that the countries of Europe lie as far north as they do. Roughly, the United States lies between 30 degrees North latitude and 48 degrees North. Decatur, Ill., lies at 40 degrees North. The Cornbelt section of this country lies roughly between 36 and 44 degrees north. The major portion of the basic foods are produced in that area of the United States.

Europe Lies North

Contrast with that the location of Germany. The southern tip of Germany lies at almost the same latitude as the Canadian border of the United States. North Germany lies at 54 degrees—5 degrees north of Winnipeg. England lies between the 50th and 56th meridians—all of it north of Winnipeg. Denmark and south Sweden lie north of the 56th meridian and all of France lies north of the Minnesota-Iowa line. All of Europe, then, lies much farther north than the average person believes to be true, and because of that the climate and the weather are different from what most of here today would anticipate them to be.

Generally speaking, days are long, temperatures are lower than ours during the summer months, rainfall distribution patterns are different from ours. Until you study those factors you do not understand the agriculture of Europe. Their climate, of course, is tempered by the Atlantic current. But the warm currents of the Atlantic do not affect the length of day, and it is length of day which determines maturity in soybeans.

The crops which can be grown to advantage in European countries are determined by these climatic factors. Generally speaking, the carbohydrate crops do much better than do the oilseed and the protein crops. On those crops the yields in European countries are well above our levels. Average yield of all wheat in Holland, for instance, was 54 bushels per acre in 1949. Potato, rye, beet, mangel and other crop yields are all comparatively high.

Soybeans can be grown in Europe. We traveled over Germany by automobile for nearly 4 weeks. We visited the experiment stations, private breeding farms, farmers growing small plots, plant breeders, extending from South Bavaria clear up to Hamburg and the North Sea. We saw soybeans growing successfully in Germany, Sweden and Holland. They are grown in Italy. American varieties, however, will not mature successfully north of Italy. The long day, cool days and nights, heavy fogs and dews are all conducive to heavy plant growth—and to very little pod set or seed development on our varieties. The Swedes and the Germans have developed early maturing varieties which will blossom and set seed in the long daylight season. But the yields per acre are so low they just will not permit competition with the other crops which can be grown on that soil to give much greater tonnages of human food.

Soy Vs. Bread Crops

In recognition of these factors we recommended to the German Foods Ministry that they give up any idea of commercial production of soybeans. We suggested they concentrate on root crop and bread grain production, and that they continue to buy their oilseeds and their high-protein materials outside Europe.

The same recommendations would apply to the remainder of Europe—if monetary exchange can be arranged they can purchase those items cheaper than they can produce them. In a section of the world where there are too many people on too little land and where yields of soybeans are only one-third to one-half of ours, they cannot afford to grow the crop. In Germany, England, Holland, Denmark, Belgium, Sweden and France the same situation exists. Soybeans will not, in the foreseeable future, be grown commercially.

We recommended that they continue their breeding work, attempting to combine the early maturity of their varieties with the yield factors existent in the varieties grown in the United States. We also suggested vegetable varieties for use green, for canning and freezing. There has been some production of soybeans on the other side of the iron curtain, and should the time come when free trade again exists between the two areas, supplies of soybeans might be grown commercially in the Balkan regions.

In Western Europe we came away fully convinced that we need have no fears about soybean production building up in competition with our production in this country. With the small farms, hand labor, the unfavorable weather, the small and scattered fields and the need for high tonnages of human foods it is not in the cards. Germany, for in-

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stance, has at the present time about one person per acre of tillable land. The Low Countries have about the same ratio. Soybeans do not fit into their agriculture. The decision on the kind of crop to grow must be made on an economic basis. Unless heavy government subsidization of soybean production should come into the picture there will be no commercial soybean production. Such subsidization is not probable.

European countries *do possess* facilities for processing rather large quantities of oilseeds, including soybeans. France, England, Holland, Denmark, Belgium and Germany all have plants which are capable of operating on soybeans, and which have been interested in our supplies. As you well know, the solvent method of processing was developed into its commercial stages in European countries and the first plants using that process built in this country were fabricated in Germany. Some of those plants were destroyed or damaged in the war, as Warren Goss has so vividly explained to you in past years. But many of the damaged plants have been repaired, are now back in operation.

Before the war Germany imported and processed as high as 60 million bushels of Manchurian soybeans in one year. She buys not only soybeans, but other oilseed crops, the choice largely dependent upon price and availability of supplies. The Minister of Foods for the new West German government told us that with the very best of crops in that country it would be necessary to import a minimum of 500,000 to 600,000 tons of oilseed crops per year.

Depends on Price

In the case of Germany the purchases will be made on either soybeans or soybean oil, dependent upon the price relationships. In December, you remember, Germany bought soybean oil because it could be purchased in this country cheaper than it could be procured by buying the soybeans and processing them at home. She has the facilities, will use them whenever it is to her financial advantage to do so. So long as we in the United States are paying the bill, or a portion of it, through ECA fund allocations, it is to our distinct advantage to keep costs at a minimum by putting people to work in the West European nations.

While you, as processors, would like to run the soybeans through your plants and then sell the oil and meal to Germany, Holland and Denmark, the only time you can ever expect to do so is when you are willing to process them for less than their costs. The ECA program is designed to rehabilitate Europe—not to make a relief agency out of the United States. Our people in key positions in those countries are doing a sincere job of trying to restore the industry and the trade, so that those nations can again carry on the manufacture and the commerce which are necessary for life.

The people employed in the handling and processing of the soybeans which have reached Germany from the United States have been gainfully employed, and their earnings have been spent several times as they have purchased foods, clothing and the services necessary to their existence. The cost to us to rehabilitate those people has been greatly lessened by their working. A small profit to you as a processor has been far more than offset by the savings made on our tax bills. And in addition, self-respect has been restored, hope has been renewed, the contribution toward peace and happiness in Europe has been such that it can not be measured.

Rather large quantities of soybean

flour have been shipped into Germany from this country during the past 2 years. It was of a different type than they were accustomed to using, and difficulties were encountered in making maximum use of it. Military authorities did not make provision for proper distribution, hence some bakers found themselves with high percentages of soy flour, while others received none. Germany has 40,000 small bakeries scattered through her villages and towns. They were given no instructions in the use of soy flour. They were offered no help from military authorities in solving technical problems. The soy flour was supplied to them to use with relatively large quantities of wheat flour, rye flour, corn flour, peanut flour and probably other products. The soy flour was the straw that broke the camel's back, and soy is being blamed for all the bad bread the Germans ate from 1945 to date.

The Selling Job

There is a big selling job to be done in Germany. It is the job of telling time after time after time, until they believe the story, the true values of soybeans in the human diet. Some of the leadership has now been convinced of that value, but the average German has not. Soybeans and ersatz are the same thing to him, and he wants none of them. He uses the oil, but he rebels at soy flour, and will continue to do so until he is given more information than he now has. I am particularly pleased that two representatives of the soy flour industry went to Germany recently, fortified with technical information and the know-how to enable them to do an intelligent job of merchandising their product to the bakers and the butchers of Germany. I am sure that move will pay big dividends.

I believe Mr. Cartter and I came away from Germany thoroughly convinced that Germans must, for economic reasons, use rather large quantities of soy proteins in their bakery goods and also in their meat products. The average German eats three commodities in quantity—namely bread, potatoes, and sausage. The sausage or "wurst" must supply his protein, and it just is not available in large enough quantities to do so. Seventy percent of the people of Germany cannot afford to buy it at present price levels. By extending it with soy protein they can make a cheaper product as well as one which will actually be more nutritious and can be extended to many more persons.

The Germans are using soybeans in the manufacture of other types of food products, too. They do not consume breakfast foods or cereals as we do in the United States, hence they have no place for soybeans in that field today. However, we did talk with several plant owners who were working on products of that type, and were waiting for plentiful supplies before coming into the markets. They are roasting soybeans, cracking them, then using them in the confectionery trade and in some types of baked goods and specialty products. They are making some candies, soups, and they are using the lecithin in a number of ways. Research along these lines is progressing now, but it was at a standstill during the war years and in most cases is behind ours in this country. But the need for proteins in bakery and specialty food products exists, and the market will develop over a period of time.

Belgium, Denmark and the Netherlands are using some soybeans, principally as a source of edible oils and oilcake or meal for livestock feeding. It is my understanding that those countries, where protein is not so short, have done very little with soybeans as human food.

England, however, presents another story. During the war years she used quantities of our soybeans for oilseed processing, and she used the flour in her sausages, breads, other bakery goods. England has a number of very modern plants designed to manufacture soybean products and utilize the protein in the human diet. England is buying soybeans from Brazil at the present time. Her millers do not like them as well as our beans, but she can buy them with British currency. She pays more than our beans would cost her—but since she does not have dollars and does have pounds she will buy from Brazil as long as her supply lasts.

The Summing Up

I think we might well summarize "The Soybean Industry in Europe" by saying that in the Western sector there is no commercial production at this time, and there are no prospects of extensive commercial production at any time in the foreseeable future. There are too many people on too little land, and coupled with that is the climate which is conducive to production of high yields of carbohydrate crops and low yields of soybeans.

Greater tonnages of oil can be produced through rapeseed, and while it is not as desirable or as versatile an oil as is soybean oil, it can be produced in quantity. Until such time as currency exchange becomes less of a problem and more free trade is established between the nations of Western Europe several of them will probably continue to produce rapeseed as an oil crop.

When trade becomes more free our soybeans and soybean products will probably look very inviting to them. No place in the world are

soybeans grown so efficiently as in the United States. It does not appear reasonable that West European countries will ever be able to compete on a price basis.

There is the possibility that at some time in the future the soybean production which existed in Southeast Europe—Rumania, Bessarabia, and the Baltic section before the war may be restored and those beans become available to Western European countries.

There is also the possibility that Manchurian soybeans will at some future date start drifting into world markets. In fact, while we were in Germany we were told about one barter deal in which German dyestuffs had been traded for a cargo of Manchurian soybeans. This was the first cargo of beans known to have been offered out of Manchuria since before the war.

European nations are going to rely on other parts of the world to produce their fats and oils and their proteins. So long as we can compete on a price basis there will be markets for large quantities of American soybeans. *If* currency exchange could be arranged, and *if* we would so arrange our import tariff structures as to allow some of the goods of Europe to come into our markets, there would be a continuing market for 100 million bushels of soybeans or the equivalent in soybean products per year.

European nations have the facilities for processing soybeans and for turning them into food products. They have the need for both the soybean oil and the protein. That protein is needed, both for human nutrition and for livestock production purposes. Over a period of time the livestock production of those nations will build up, and they will need increasing quantities of protein feeds.

The United States is a nation of agricultural surpluses. European nations are all deficit areas. England and the Netherlands have seen their Colonial Empires disintegrate. Former sources of supply of raw materials are no longer available to them. Former channels of trade have been disrupted. All of Europe has gone to a barter basis of trading. We were told that ninety percent of the business of European countries was now conducted on a basis of trading one article for another, with no money changing hands. In that respect Europe has gone back to medieval times.

Until the barriers of currency exchange can be broken down, and until the trade barriers between the nations of Europe are removed, it is going to be difficult to restore anything like normal trade. Until that trade is restored it is going to be very difficult to sell our products to European nations unless we agree to take some of their goods in return.

ECA Won't Last

We will, of course, continue to sell soybeans and soybean products so long as we send ECA dollars to Europe with which to pay for our products. But that program can not last, and we in the soybean industry should be doing some serious thinking about the type of program which would enable us to supply soybeans and soybean products to European countries in exchange for some of the products which those countries have and we need. The countries of the world that work out such programs are the countries which, over a period of years, will supply the fats and oils and the proteins to the nations of Europe.

We in the United States must decide whether we are going to again become isolationists, or whether we want to be the leaders of world trade. We have the financial resources, the raw materials, the factories and the know-how which will enable us to hold that position if we will make up our minds to do so.

That may seem a bit far removed from soybeans, soybean meal and soybean oil. But unless we decide to promote trade, merchandise our goods, take other items in return, we are not going to sell our soybean products in the markets of Europe over a period of years—not after we stop paying for them.

Europe has the plants, machinery, equipment and know-how to use our soybeans and soybean products in large quantities. She will do so—if we make it possible for her. We produce soybeans and soybean products in greater quantity and more cheaply than any other nation of the world. If we take the initiative to merchandise those products intelligently we can build markets far beyond even the wildest of dreams. The decision is ours.

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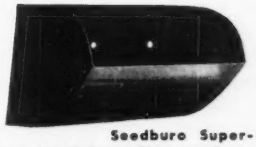

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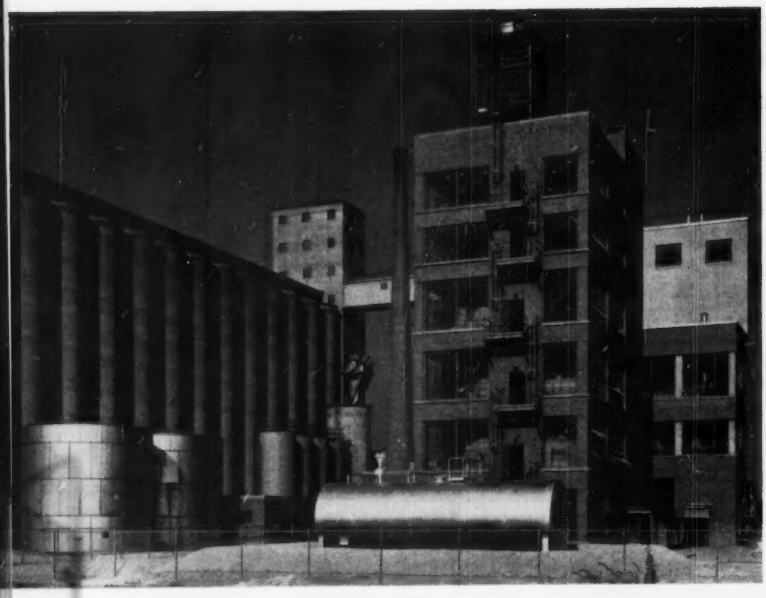
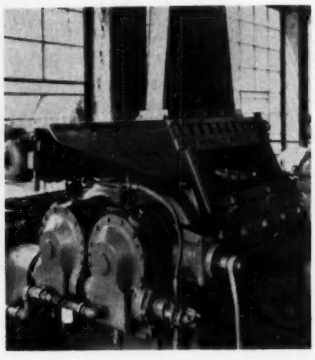


At left you see the new 200-ton-per-day solvent extraction plant of Ralston Purina Co. at Iowa Falls, Iowa. Below, one of the Blaw-Knox flaking mills in the plant.



PURINA'S NEW IOWA FALLS PLANT

By K. McCUBBIN, G. J. RITZ, and H. L. BARNEBEY

Chemical Plants Division, Blaw-Knox Co.

THE RALSTON-PURINA CO. has increased its soybean processing capacity with the opening of a new solvent extraction plant at Iowa Falls, Iowa. This new Ralston unit, designed and built by the chemical plants division of the Blaw-Knox Construction Co., was successfully tested and accepted in the latter part of November 1949. An almost identical unit is being placed in operation for Ralston-Purina at Bloomington, Ill.

The new extraction plant adjoins an existing installation which consists of an expeller plant, storage silos, a meal blending and bagging unit, and a mixed feed plant. The expeller plant has a capacity of 140 tons of soybeans per day. The silos have a capacity of about 1,300,000 bushels of beans and will serve as a storage supply for both plants.

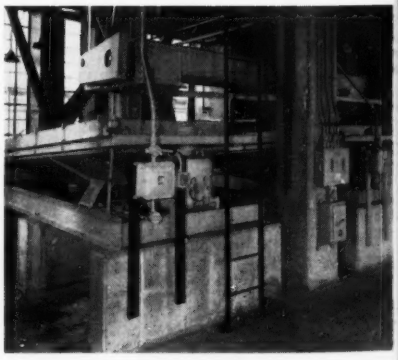
The Blaw-Knox solvent extraction unit is designed to process soybeans containing 19 to 22 percent oil by weight and 9 to 14 percent moisture; it will produce about 9,000 gallons of soybean oil and 160 tons of meal per day when operating at designed capacity.

Hexane recovery from the oil and meal is essentially complete, but small normal losses through the vent system are guaranteed to be less than 0.7 percent of the weight of beans processed, or, in this case, 1.4 tons per day. The new plant has been operating well within all the guaranteed performance requirements.

The processing of beans is divided for convenience into two parts: the preparation of the beans for the extraction process, and the extraction itself. For complete safety, each part is carried out in a separate building. In the preparation building the beans are first broken up by cracking mills, and are then run through a steam heated conditioner which regulates the moisture content to around 11 percent and heats the beans to plastic state. The thermo-plastic beans are then passed through flaking rolls which flake the bean particles to a thickness of about 8 to 10 thousandths of an inch. The preparation of the beans, as the name implies, serves to condition the beans in order to permit more complete extraction of the oil in the process.

The flaked beans are then conveyed to the extraction building by a system of conveyors and elevators. The extractor used in this plant is an improved vertical unit which provides co-current and multiple step counter-current extraction. The flakes are fed through the top of the extractor to downward moving baskets. As the baskets move downward, the flakes are sprayed with "half-miscella" (which is a mixture of soybean oil and hexane, rich in hexane) producing full miscella.

Below, sifters employed in the screening of the soybean oil meal in Ralston Purina's Iowa Falls plant.



21 Smart ideas* for 1950!

(L to R) Ford 145-h.p. Model F-7, Model F-5 and Model F-1 passing tough tests at the Ford test track.

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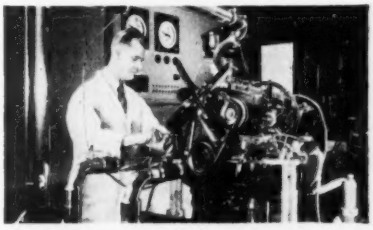
Only Ford gives you a choice of V-8 or Six in a full line of over 175 truck models!

Ford Trucks for 1950 give you new models, new power, new Bonus Built features . . . 21 smart ideas in all. *New models* like the F-3 Parcel Delivery. *New power* like that of the new 110-h.p. Six. *New features* like air brakes available on Model F-8. You'll find all these smart ideas in America's No. 1 Truck Value for 1950, plus Bonus Built construction which means big reserves of strength and power. See your Ford Dealer today!

21 Smart ideas ✱ New 110-h.p. 6-cylinder engine ✱ New Parcel Delivery models ✱ New air brakes available on the F-8 ✱ New wheelbases: 176-in. for F-5 and F-6; 147-in. and 178-in. on Big Jobs ✱ New 15-in. by 5-in. rear brakes for the F-7 ✱ New 4-speed Synchro-Silent transmission with 110-h.p. engine ✱ New single-speed rear axle for F-8 ✱ New, extra-heavy duty clutch with 110-h.p. Six ✱ Million Dollar Cab ✱ Level Action cab mounting ✱ Air Wing door glass ventilators ✱ New Double Channel frame for Big Jobs ✱ Gyro-Grip Clutches ✱ New single-speed axle for F-6 ✱ Roll Action Steering ✱ New, extra-heavy drive line with 110-h.p. Six ✱ Quadrax rear axles ✱ 4 engines—choice of V-8 or Six ✱ New heavy duty 3-speed Synchro-Silent transmission available for F-1, F-2, F-3 ✱ Choice of over 175 models ✱ Bonus Built construction, which means big reserves of strength and power.

NEW PARCEL DELIVERY chassis comes with grille, windshield and front quarter-windows. Available in Series F-3 and F-5 (Special order).



NEW 110-H.P. SIX available on Series F-6 has Free-Turn exhaust valves, Autothermic pistons, chrome-plated top piston ring.

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Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford Trucks last longer.

which consists of about 25 percent oil and 75 percent solvent. The baskets, after traveling downward in the half-miscella spray, then move upward counter-current to a spray of clear hexane producing the half-miscella used in the other part of the extractor. The combined co-current and counter-current flow results in a low residual oil content in the flakes, because the low oil content flakes are extracted with clear fresh hexane which removes all but traces of the oil. As the baskets return to the top of the extractor, they are drained, automatically dumped, and the extracted flakes are conveyed to the desolventizing system for hexane recovery.

The flakes pass through a desolventizer which evaporates most of the hexane by means of recirculated superheated hexane vapor. The solvent vapor produced is condensed and piped to a decanter. The flakes then pass to a deodorizer where the last trace of solvent is removed by treatment with a small quantity of live steam.

The next step is the toasting operation in which the meal is uniformly cooked at about 15 psig in a Blaw-Knox "Pressure Toaster." The toasting operation is very important in the processing of the soybean meal since it breaks down the complex protein molecules which cannot be assimilated by some animals. The toaster is designed so that the variables of time, temperature, and moisture can be controlled independently to give the exact degree and type of cooking desired. After toasting, the meal is cooled and returned to the preparation building for further processing including pulverizing and sifting. It is then conveyed to the mixing plant where it is blended into the various Purina "Chows" which are fed to everything on the farm from chickens to cattle.

Returning to the extraction step, the hexane must be recovered from the oil to complete the process. The full miscella is pumped from the bottom of the extractor through bag filters to remove any solid particles which might clog the heat exchangers and evaporators. The miscella is then run to a rising film evaporator operating at atmospheric pressure which removes the major portion of the hexane, then passes through a flash tank to a falling film evaporator operating under vacuum. This removes all but a trace of the hexane which is then completely removed in a packed column by stripping with superheated steam. The finished oil is pumped to one of several large rail siding storage tanks. Complete oil handling facilities at the site include a tank carloading station for bulk shipment of the oil.

This solvent extraction plant was sold on a "turn-key" basis. Chemical plants division designed the process, furnished all the equipment, designed and constructed the buildings, installed the equipment in the buildings, and placed the plant in operation. A staff of Blaw-Knox trained engineers took charge of initial operation of the plant.

—s b d—

TO REDUCE ODORS

Development of a line of materials for use in the reduction of unpleasant odors has been completed by the chemical division of 44 Trinity Place Corp., New York City, it is stated.

The materials, it is said, are not masking or covering agents, but are odor reducing agents. Formulations have been developed for odor reduction of tall oil, fish liver fatty acid, petroleum products, napthenic aid, kettle bodied linseed oil, China wood oil, stearic acid, red oil, white olein, cotton seed and soybean fatty acids and oils.

—USDA photo

Members of the Oilseeds and Peanut Advisory Committee. Seated, left to right: T. H. Gregory, Memphis, Tenn.; A. D. Richardson, Floresville, Tex.; Harry J. Deuel, Jr., Los Angeles, Calif., chairman; J. B. Edmondson, Danville, Ind.; Otto Brandau, Rudd, Iowa; Argyle McLachlan, Imperial, Calif. Standing, left to right: Leo A. Fisher, Sikeston, Mo.; Charles B. Shuman, Chicago, Ill., vice chairman; Maurice R. Cooper, assistant to the administrator and executive secretary; Louise S. Vance, recording secretary; William H. Fischer, Milwaukee, Wis.; and Howard Kellogg, Jr., Buffalo, N. Y.

URGES SPEEDUP IN FLAVOR RESEARCH

Fundamental research to solve the problem of flavor stability in soybean oil should be accelerated immediately as far as funds permit, the oilseeds and peanut advisory committee set up under the Research and Marketing Act recommended in a meeting with U. S. Department of Agriculture officials in Washington Feb. 2 and 3.

The committee agreed that all RMA projects now under way on oilseeds and peanuts should be continued.

It recommended that the following projects relating to soybeans and soy products should be undertaken if and when additional funds become available:

Utilization—Determine by actual tests with human beings the amount of fat required in the diet of individuals according to age and occupation; develop improved uses and ways of using fats and oils now on the market for pastries, general baking, frying and salads with a particular view to developing better quality of the end products.

Determine the effect of fats and oils in the diet on the use of other nutrients, especially minerals and vitamins; obtain more information concerning common household practices in the use of different fats and oils as a guide to the qualities needed for specific purposes, and to potential outlets for the kinds of fats and oils available.

Production—Develop superior varieties of soybeans for food, feed, and industrial purposes with particular emphasis on varieties adapted to areas where soybeans are not now commonly grown; improve cultural and chemical means of controlling insects that attack soybeans and flax and for the eradication or control of Southern blight and root rot of peanuts and other crops; develop methods of handling and storing soybeans that will preserve their viability for planting seed.

Develop rapid and reliable methods for determining the moisture content of soybeans and flaxseed; evaluate existing and potential markets for edible vegetable oils including corn, cottonseed and soybean oils and their products and help in expanding market outlets for them; evaluate the need for additional current information on supply, marketings, inventories, utilization, and prices for oilseeds and fats and oils at different stages of processing and distribution.

Study the marketing of soybeans in the main producing states with special reference to the effects of forward sales of soybean meal and oil; evaluate existing and potential markets for drying oils such as linseed, soybean and tung oils as a step toward expanding market outlets for them, study what effect changes in oil extraction methods (solvent, screw press etc.) might have upon the soybean oil crushing industry, market outlets, and returns to growers; ascertain consumer preferences for various cooking fats and oils and reasons for the preferences.

BOOKS

COTTON IN FARM PROGRAM

The cotton crop can become the hub of a prosperous and permanent diversified Southern agriculture to an extent little realized if its by-products are properly utilized on the farms where it is grown.

You will gain a better understanding of the cottonseed industry of Texas as well as of the whole nation by a careful reading of a new and comprehensive book on the subject by A. B. Cox, University of Texas professor of cotton marketing.

Cotton ginning and cottonseed crushing are both essentially local industries even though large corporations are sometimes built around them. Cotton is hauled 10 miles to the gin on the average. And Texas crushers get most of their cottonseed supplies from within a radius of 25 miles.

Professor Cox makes it plain, even to a Yankee, why this is so. Cotton is bulky and short hauls are the most economical. Cottonseed cake and hulls compose over 70 percent of the weight of the processed seed, so freight cost is largely eliminated by marketing them locally as livestock feed.

Also, most of the fertility removed from the land by cotton is in the meal, hulls, waste and stalks. These should go back on the land where they are produced.

"The cotton growing region has in the cottonseed meal and hulls the basic feed products for livestock upon which to build a permanent agriculture," says the author. "The market for these products is the cotton growing region and in most instances on the very farms that grew the cotton."

The author questions whether the solvent extraction process is so well adapted to cottonseed as to other oilseeds. The larger investment required would point to year-around operation of solvent plants. But the perishability and bulkiness of cottonseed are factors favorable to the operation of small units.

THE COTTONSEED CRUSHING INDUSRY OF TEXAS IN ITS NATIONAL SETTING. By A. B. Cox, 346 pages. Price $5. Cotton Research Committee of Texas, University Station, PO Box 1645, Austin, Tex.

PROCESSORS MEET IN MISSOURI, OHIO

Tri-state processors' conferences are being held at Columbia, Mo., and Columbus, Ohio, in March.

Missouri-Iowa-Minnesota processors met at the University of Missouri, Columbia, Mar. 1 and 2.

And Illinois-Indiana-Ohio processors are meeting at Ohio State University, Columbus, Mar. 14 and 15.

The National Soybean Processors Association recently organized itself into the two tri-state groups to hold meetings to hear reports of progress in the soybean industry and in the production of the crop.

Annual meetings are being held at the agricultural experiment stations of the various states, where the results of local research with soybeans can be reviewed and intergroup knowledge and ideas can be exchanged.

Official, agricultural and industrial representatives attended the two meetings.

Missouri

R. G. Houghtlin, president of the National Soybean Processors Association, Chicago, and W. C. Etheredge, University of Missouri, presided at the Missouri meeting.

The speakers and their subjects:

Carver Brown, Laddonia, Mo., "Why I Grow Soybeans."

Howard J. Gramlich, Chicago & Northwestern Railroad, Chicago, "Backward and Forward."

H. M. Haag, Missouri Farmers Association, Columbia, "Business Outlook for Soybean Oil and Meal."

George Pond, division of agricultural economics, University of Minnesota, St. Paul, "Soybeans in the Minnesota Cropping System."

J. W. Lambert, department of Agronomy, University of Minnesota, St. Paul, "Leading Soybean Varieties in Minnesota."

C. R. Weber, farm crops subsection, Iowa State College Ames, "Leading Soybean Varieties in Iowa."

C. V. Feaster, department of field crops, University of Missouri, "Leading Soybean Varieties in Missouri."

J. R. Paulling, Deering Farms, Deering, Mo., "Soybean Production in Southeast Missouri."

Damon Catron department of animal husbandry, Iowa State College, Ames, "Nutritional Uses of Soybean Oil and Meal."

Ohio

Presiding at the Ohio meeting Mar. 14 and 15 will be: Houghtlin, G. W. Volk, Ohio Agricultural Experiment Station, and W. L. Burlison, head department of agronomy, University of Illinois.

Speakers and their subjects:

H. J. Mederski, C. E. Evans and D. J. Lathwell, Ohio Agricultural Experiment Station, "Mineral Nutrition of Soybeans."

H. R. Bird, Agricultural Research Administration, Beltsville Md., "Soybean Protein in Poultry Diets."

Geo. M. Strayer, secretary-treasurer American Soybean Association, Hudson, Iowa, "American Soybean Products in the Economy of Europe," and Kodachrome travelog.

J. Boyd Page, Ohio Agricultural Experiment Station, "Effect of Soybeans on Soil Structure."

Don Paarlberg, Purdue University, "What Makes the Price of Soybeans?"

L. J. Norton, University of Illinois, "Domestic and Foreign Outlets for Soybeans and Soybean Products."

H. J. Gramlich, general agricultural agent, Chicago Northwestern Railway, "These 50 Years."

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JUST PUBLISHED: NEW SOYBEAN BLUE BOOK

The 1950 edition of the Soybean Blue Book, annual directory of the soybean industry published by the American Soybean Association, will be issued early in March, the editors have announced.

The 132-page yearbook, the fourth to be issued, contains even more statistical information and firm listings than in the past.

Included will be statistical information on production and prices of soybeans, soybean oil and oil meal. Also included are statistics on utilization of soybeans and soy products with all tables brought up to Jan. 1.

As in the past there are descriptions of the associations in the industry with their officers listed; and federal grading standards for soybeans together with a soybean terminology.

The 1950 Soybean Blue Book carries revised directories of soybean processors, oil refiners, manufacturers of soy products, firms serving the industry, and of federal and state agencies conducting soybean research.

Copies will be mailed to all paid-up members of the American Soybean Association.

You may obtain additional copies for $1 each. Write Soybean Blue Book, Hudson, Iowa.

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CHANGES IN PMA

Appointment of Harold K. Hill as assistant administrator for Production, Production and Marketing Administration, effective Feb. 1, was announced by Ralph S. Trigg, PMA administrator.

In his new position, Hill will succeed William B. Crawley who is leaving his Washington position to return to Alabama as chairman of the PMA state committee, where he will be closer to his family and his farming operations.

John H. Dean of South Carolina, at present assistant director of the PMA Cotton Branch, will replace Hill as deputy assistant administrator.

Iowa Plant of Doughboy Industries

—Photo by Soybean Digest

This plant of Doughboy Industries, Inc., at Fairfield, Iowa, was formerly a wagon wheel factory. Soybeans are stored in warehouses which will hold 250,000 bushels. Three-screw-press processing plant which manufactures "Doughboy" soybean oil meal, feeds and pellets, is in the background. Paul Bauch is plant manager. Main offices of the firm are at New Richmond, Wis.

—Photos by Paul C. Hughes

A Delta Products Co. truck takes on a load of margarine and shortening at the plant.

OILSEEDS FROM FARM TO MARKET

"From farm to market" was given a new twist by Delta Products Co. of Wilson, Ark., last October when the firm began production in its new margarine and shortening plant.

It became the first firm to take oilseeds from the farm to market as margarine and shortening in one continuous operation.

A group of farmers organized the Delta Products Co. as a cooperative to process their cottonseed back in 1936. Later, they decided that with the Wilson Soya Corp., their soybean market, supplying the soybean oil, they should carry their marketing program all the way to the consumer by manufacturing their oils into margarine and shortening.

In charge of carrying out the program were the chairman of the board, R. C. Branch of the Blackcat Plantation and a director of the St. Louis Bank for Cooperatives, and the board's president, J. H. Crain, general manager and trustee of the Lee Wilson Co., Wilson, Ark.

The entire operation is under the general management of S. A. Regenold, who is also general manager of Wilson Soya Corp. The refinery and the processing plant for margarine and shortening were started in the summer of 1948 and went into operation last October. The two plants are under the management of J. A. Preston who was with Procter & Gamble Co. before coming to Delta Products Co.

The soybean oil is brought from Wilson Soya Corp. and the cottonseed oil is processed in the company's own solvent plant managed by W. H. Moore. The oil is piped from the processing plant to the company's up-to-date refinery where it is hydrogenated. The hydrogenated oils are then piped into the food processing building to be made into margarine and shortening.

The food processing plant is of the most modern design. It can produce 5,000 pounds of Delbrook margarine and 9,000 pounds of Delpure or Delpro shortening an hour. The actual production of both margarine and shortening is under the supervision of T. A. Grubbs, who came to Delta Products from Southwest Margarine Co. of Dallas, Tex. Grubbs uses a blend of soybean and cottonseed oils in both margarine and shortening.

The company has a sales force that sells the products and operates a fleet of trucks that make speedy deliveries direct to distributors.

Plant supervisor T. A. Grubbs explains the operation to Frank Wilson, district salesman.

SEES BIG PLACE FOR U. S. FATS ABROAD

Europe's acute shortage of food fats has ended, but United States fats and oils likely will continue to hold a strong place among West European imports, reports the U. S. Department of Agriculture. Demand will not, however, be as great as during the past year.

These observations have been made by Dr. L. J. Norton, agricultural economist, who has just completed for the Office of Foreign Agricultural Relations a first-hand study of developments affecting the demand for fats and oils in eight European countries.

The study covered the United Kingdom, France, Belgium, The Netherlands, Western Germany, Denmark, Czechoslovakia and Italy. Because of the basic importance of fats in their standard of living, these countries will make a strong effort to continue buying considerable quantities in the United States.

Europe's production of butter and slaughter fats has been increasing. Production in 1950 of oil from the 1949 olive crop will be much greater than 1949 oil production. Supplies of soft (liquid) oils are still short in non-dollar areas, however, and a number of these countries would like to buy soybean or cottonseed oil in the United States for use in margarine manufacture. Demand for this purpose is likely to be strongest from Germany, The Netherlands, Denmark and Belgium.

A fairly large quantity of United States lard will be shipped to Germany and smaller quantities to a few of the other countries. Inedible tallow and grease will be sold to a number of countries because of their low cost and the shortage of other fats available for soap manufacture.

Italy could use some edible vegetable oils, primarily as a supplement to olive oil. The United Kingdom has access to sufficiently large non-dollar supplies of oilseeds, oils and oil meals and, in view of its dollar position, is not likely to be a customer for United States supplies.

Imports of oilseeds, especially soybeans and peanuts, provide supplies for European crushing industries and make possible the production of high protein feeds.

The recent currency devaluation in most of these countries makes United States products less attractive than formerly. Fats and oilseeds with the same dollar cost must now be priced higher in the currency of the importing country.

PIONEERED SOIL-BUILDING PROGRAM

ASA Vice President Jake Hartz, Jr., of Stuttgart Ark. has literally known soybeans from the cradle.

His father was among the first in the Midsouth to "preach the soybean gospel" and long ago was dubbed the Soybean King of Arkansas.

The well known seed firm, Jacob Hartz Seed Co., with which Jake is associated is given much credit for the program of diversified farming that has taken hold in the rice section of Arkansas. In fact, the firm grew out of the family's efforts to induce farmers to change over from a one-crop system of rice farming.

JAKE HARTZ, JR.

Jake was born at Wheatley, Ark., in 1920. He has lived in Stuttgart for the past 25 years. He has been associated with his father in farming and the seed business since he graduated from high school in 1938.

Jake's grandfather and father with A. R. Thorell formed the Hartz-Thorell Supply Co., a farm machinery firm, in 1924. But farm seeds had long since become the main line when the partnership was dissolved in 1942 and the Hartz boys brought into the firm.

At present four boys, B. J., Jake, Jr., Marion and Alfred, are associated with Jacob Hartz, Sr., in Jacob Hartz Seed Co. A fifth, Richard, operates the Hartz farm.

The firm processes and ships soybeans, oats and lespedeza. The Hartzes have seen the production of soybeans in Arkansas grow from practically nothing to over 5 million bushels in 1949. The lespedeza crop has grown from nothing at all in the 30's to over 11 million pounds of seed in 1949; and oats from 2 million bushels to 9 million bushels.

Jake is a past president and past secretary and treasurer of the Arkansas Seed Dealers Association. He is now a director of that Association. He is a member for Arkansas of the executive committee of the Southern Seedsmen Association. He is president of the Stuttgart Lions Club and director of the Chamber of Commerce.

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CARTTER

(Continued from page 15)

ern variety, CNS, carries resistance to bacterial pustule, though it is agronomically a poor variety. Crosses have been made between CNS and agronomically desirable varieties, and the work has advanced to the point where promising disease resistant selections have now been placed in yield tests for further evaluation.

The continued progress in development of higher yielding, high oil content, disease resistant strains of soybeans through the cooperative breeding program of the Laboratory and the participating states gives evidence that the cooperative approach to this problem is paying dividends. As we continue to devote our combined energies and resources to solving the problems of soybean breeding and improvement, we have every indication that we will be able to make as substantial progress in the future as we have made in the past.

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When you write to our advertisers be sure to mention the Soybean Digest.

Combining Dortchsoy No. 31 soybeans in December 5 weeks after maturity.

1949 VARIETY TEST AT DORTCH FARMS

By L. M. HUMPHREY
Plant Breeder, Robert L. Dortch Seed Farms

AS A REGULAR part of our soybean breeding and research work, extensive variety testing is conducted annually. Two variety tests are conducted; one for the testing of commonly grown varieties including those of our own that are in production, and the second test includes new strains which are still under observation. The purpose of this article is to report the results obtained from our test of commercial varieties conducted in 1949. The test was conducted on the Station Place Plantation of the Robert L. Dortch Seed Farms at Scott, Ark. The commercial test contained the 14 varieties included in the accompanying table, and the new strains test included 32 experimental strains which are not reported. The soil on the part of the plantation devoted to soybean and other experimental work is fine sandy loam Arkansas river bottom land of a little above average fertility. The pH is 6.7, and 300 pounds of 3-9-18 fertilizer was broadcast on the land before the final disking before planting. In order to obtain uniform plant competition and to make possible a detailed study of individual plant behavior and performance, the test was planted in hills 22 inches apart and thinned to one plant per hill. Rows were 38 inches apart and 60 feet long. Five randomized replications were planted, but only the first four were harvested to obtain yielding ability. The fifth series was left for observations on shattering resistance and other factors affecting soybeans left in the field after maturity. At harvest the plants in the first four series were cut by hand and threshed on a small portable power driven thresher. The test was planted May 10, 1949.

Factors affecting Crops: Weather conditions in 1949 were generally unusually favorable to soybean production. Rainfall was ample and well distributed, and temperatures were moderate and never excessive. Cool weather in early September delayed maturity of the crop by about 10 days, but did not damage the yield. Thirteen rainy days in October interfered somewhat with harvesting of early and midseason varieties, but at the same time the high relative humidity held down shattering in October so that very few beans were lost in this area.

Discussion of Varieties:

YIELD—Since Dortchsoy No. 2 and No. 31 have been tested, they have consistently led our variety tests. The 4-year average yields are identical at 49.4 bushels per acre. Yields this year were 54.0 and 51.8 bushels per acre respectively. The highest yields of 56.7 bushels per acre made by strains of Dortchsoy No. 2 and No. 31 were the highest ever recorded in our testing work. Dortchsoy No. 67 is an early variety of approximately the same maturity as S100 and yielded very well for a bean of this maturity. This variety will be in production in 1951. The very early varieties Lincoln and Patoka did not make satisfactory yields.

SHATTERING — Shattering was somewhat less severe than normal because of wet humid conditions in October as mentioned above in the paragraph on weather. Under 1949 conditions, varieties showing less than 5 percent of shattering 30 days after maturity may be considered highly shatter resistant. As a matter of further interest in this connection, the following varieties showed less than 3 percent of shattered pods 50 days after maturity: Dortchsoy Nos. 7, 31, 31A, 31B, Roanoke, N45-3036 and 2-43-A. These varieties may be considered very highly shatter resistant.

MATURITY — The phenomenon of physiological response to the length of the period of daylight is well known. The only satisfactory way to stagger the maturity of parts of a soybean crop is to plant varieties having different time requirements for reaching maturity. In this region, those varieties that matured in 140 days or less may be considered early; those that matured between 140 and 160 days are of medium maturity, and those maturing in 170 days or later may be considered medium late or late.

1949 SOYBEAN VARIETY TEST
Planted May 10, 1949 — **Robert L. Dortch Seed Farms—Scott, Arkansas**

Variety	Yield in Bushels Per Acre 1949	2-Year 1948-1949	3-Year 1947-1949	4-Year 1946-1949	Days To Maturity*	Lodging at Maturity	Shattering at Maturity	Shattering After 10 Days	Shattering After 20 Days	Shattering After 30 Days	Bean Color
Dortchsoy No. 2	54.0	—	—	49.4	155	None	None	None	Trace	10%	Green
Dortchsoy No. 2A	56.7	—	—	—	155	None	None	None	Trace	10%	Green
Dortchsoy No. 31	51.8	—	—	49.4	172	None	None	None	None	Trace	Green
Dortchsoy No. 31A	56.7	—	—	—	172	None	None	None	None	Trace	Green
Dortchsoy No. 67	45.6	41.7	—	—	138	None	None	Trace	Trace	4%	Green
Dortchsoy No. 7	36.7	—	—	36.5	160	Trace	None	None	None	None	Yellow
Ogden	40.8	—	—	40.1	156	None	None	Trace	2%	15%	Green
Burdette No. 2	47.9	—	41.3	—	155	None	None	None	2%	20%	Green
Roanoke	45.8	—	—	41.4	176	Med. Bad	None	None	None	Trace	Yellow
N45-3036	46.4	—	—	—	180	Bad	None	None	None	Trace	Yellow
2-43-A	33.3	32.8	—	—	148	None	None	None	None	Trace	Yellow
S100	28.8	—	—	28.9	133	Medium	None	4%	10%	25%	Yellow
Lincoln	16.8	—	19.3	—	110	None	None	5%	10%	40%	Yellow
Patoka	18.1	—	22.9	—	120	None	Trace	8%	20%	50%	Yellow

*All varieties matured approximately 10 days later than normal because of cool wet weather the first half of September.
Difference required for significance, 5.7 bu.

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SOYBEAN RESEARCH *Projects*

By J. W. CALLAND
Managing director, National Soybean Crop Improvement Council. From talk before soybean processor meeting at Urbana, Ill.

SOYBEAN RESEARCH is approached from many angles. "Boss" Kettering once said, "What you don't know but are willing to try to find out is the real meaning of the word 'research'." He has a way of making profound statements with a few words.

For the purpose of this discussion, I am dividing soybean research broadly into projects being carried on by the agricultural experiment stations and those carried on by the soybean processors. The soybean research at the U. S. Northern Regional Research Laboratory at Peoria and the work of the U. S. Regional Soybean Laboratory at Urbana, are not being considered in this report.

I want to point out the great importance of the regional approach to soybean research that came with the establishment of the Regional Soybean Laboratory. Previously, soybean research had been on a state basis which naturally led to a lot of variation in variety development and testing, cultural practice recommendations, etc. The regional approach to hybridization studies and tests and to the evaluation of varieties through the uniform variety tests has brought about a much greater degree of uniformity in recommendations. The composition of soybeans has been greatly improved.

The development and distribution of improved varieties such as Lincoln, Hawkeye, Earlyana, Wabash, Adams and Monroe are good examples of this in the 12 northern cooperating states. Tests over the 12 southern states have revealed the superiority of Ogden and other varieties there. New and better varieties will follow.

Soybean disease work is now on a regional basis. It would seem that a number of other things such as cultural practices, fertilization, effect on succeeding crops, erosion control, long time rotations, weed control, and other problems connected with the production of soybeans could be advantageously studied on a regional basis.

Experiment Stations

All of the Cornbelt stations are actively engaged in the breeding, development, and testing of superior soybean varieties in cooperation with the Regional Laboratory. These projects include breeding for disease resistance, maturity studies, variety behavior, inheritance factors, genetic studies, disease studies, and many other factors related to plant breeding and testing. This phase of soybean research is going actively forward. Each year results of this work add millions of dollars to the income of Cornbelt soybean growers.

Several states are studying soybean cultural practices. These projects include seed treatments for disease control, rate and date of planting for different varieties, and inoculation of soybeans. Illinois is following this through to determine the effect of inoculating soybeans on clover crops later in the rotation. Other cultural practices being studied are row versus solid planting, germination studies, weed control, alternate planting with corn, chemical defoliation, harvesting losses, soybean storage, mechanical seed inquiry, and crop residue management.

The effects of various soil treatments, both direct and indirect, are being studied. These include fertilizer applications directly to the soybean crop and to other crops in the rotation: the influence of lime and fertilizers on clover production following soybeans; the manganese, sulfur and other minor element needs of soybeans; the response of soybeans to nitrogen applications; and the effects of various fertility levels to the growth and composition of soybeans. Methods of fertilizer application, such as plow down, broadcasting, and in the row, either with or removed from the seed, are getting attention.

A more definite spot for soybeans in crop sequences and rotations is a matter of much interest. Projects at several experiment stations are designed to give additional information on rotations which include soybeans. Factors being checked are the effects of soybeans on the crops which follow and on the dollar return for each year of the rotation, the comparison of various cropping systems on the soil, the effect of soybeans and other crops on soil condition and growth of subsequent crops. The relationship of soybeans and other crops to erosion control is being determined at several stations. Missouri is working on

double cropping of soybeans and wheat.

Work is underway at both Ohio and Illinois to learn more about the physiology and nutrition of the soybean. Included are studies of nutrient deficiencies, the effect of nutrients on the different physiological phases of soybean growth, and the effect of soil conditions other than nutrients.

In addition to the various research projects dealing rather directly with soybean production, the various stations have been doing a great deal of work on soybean products, particularly in feed studies involving soybean oil meal. Current projects include soybean oil meal versus ground soybeans for dairy cows, supplementing corn-soybean oil meal rations with vitamins and amino acids for swine, soybean meal in poultry rations, soybean oil as a supplement to separated milk for calves, and others dealing mainly with the supplementation of soybean oil meal and grain rations for both livestock and poultry. A number of these feeding projects have been sponsored by various soybean processors.

Suggestions for Expanded Research

Suggestions offered by experiment stations relative to phases of soybean production needing expanded research:

1—Continue the production, testing and distribution of improved soybean varieties, including expanded study of all of the factors involved in soybean genetics.

2—Obtain more fundamental information on the physiological, nutritional, environmental and microbiological requirements of the soybean plant for optimum growth.

3—Expand studies on the effect of both nutrients and soil conditions on soybean yields, particularly with regard to certain soil types where soybean yields are at a low level, and find out more about variety differences on such soils.

4—Further work on cultural practices, including the relation of soil fertility to repeated inoculation of soybeans, soybean diseases as affected by crop sequences, response of soybeans to nitrogen treatments, more economical disposition of cornstalks preparatory to seeding soybeans, and better weed control.

5—The problem of the effects of the soybean on the physical properties of the soil with reference to other crops, rotations, and soil conservation should be more thoroughly studied.

6—Development of a rapid method of determining the oil content of soybeans remains a constant challenge.

Processor Projects

The research projects reported by the soybean processors seem to fall into three general classifications. The first of these is continuous research on improved plants, equipment and processing methods aimed at more economical production of highest quality soybean oil and meal. The second group of projects is directed toward further refinement of these basic materials into special use products. The third field covers use studies, market development, sales, educational and promotional efforts, and product refinement.

Projects pointed to improved processing include many things connected with both screw press and extraction processes. Many of these are directed at improving the quality of soybean meal for animal and poultry feed. Intensive nutritional studies are conducted by a number of processors who also are manufacturers of feeds. Other projects aim toward improvement in the overall chemical and physical properties of edible soy flour. Still others have to do with oil improvement. These cover such things as dehulling, degumming, water washing, handling and storing of crude oils.

In the field of special products comes various oil treatments to adapt soybean oil to special uses; improvement in lecithin removal and the processing of finished lecithin products for both edible and inedible fields; studies to improve various types of soy albumins for both edible and industrial uses; improved oil processing as a means of preventing flavor reversion; improved methods for obtaining high quality industrial proteins from extracted flakes; and research on the usefulness of whole and fractionally distilled soybean oil fatty acids in the field of house paints, varnishes, lacquers and enamels.

While it is not in the province of this report to discuss the vast amount of money and effort that the soybean processing industry has put into the development of markets for soybean products over the past 25 years, this tremendously important work must in no sense be discounted. The markets for our huge soybean crops did not just happen; their creation and development by the industry has been one of the truly great contributions to American agriculture.

One or two recent and interesting

developments should be mentioned. It has been found commercially possible to remove valuable vitamin concentrate from soybean oil without in any way changing the characteristic of the oil. Under normal processes when the oil is processed for shortening or any other edible purpose these vitamins are ruined in the process. One company is extracting vitamin D from crude soybean oil and reselling the oil as a semi-refined product.

Also of interest is styrenated soybean oil. With the reduction in the demand for synthetic rubber the war-built rubber plants have an excess of styrene. Several companies are now combining this styrene with vegetable oils. From the combination of styrene and soybean oil a very good drying oil is manufactured which for special purposes makes an inexpensive protective coating and is used by manufacturers of oilcloths, window shades, etc.

Studies on the fractionation of soybean oil have been going forward actively in several laboratories. At least two fractionating processes have been developed to the point of commercial use, and products from these processes are now under study. Of special interest are the high and low iodine fractions, the non-saponifiable fractions, and vitamin concentrates. It is hoped that all these fractions will be the starting point for many new and useful products, and that they will materially increase the value of soybean oil.

The alcohol extraction process, developed at the Northern Regional Laboratory, is being watched carefully by the industry in view of the recent price reduction of alcohol. The quality of the products from alcohol extraction has aroused a great deal of interest in the trade, and active work is being carried on now in evaluating the products obtained from the alcohol process.

Processor Suggestions

Processors appear to be in rather general agreement that the most important increases in the value of the basic soybean products—oil and oil meal—will come with the solution of these three problems:

1—The ultimate success of low-cost fractionation of soybean oil.

2—The complete elimination of flavor reversion in the crude oil.

3—The improvement and control of processing operations to insure uniform high biological value soybean oil meal, together with the addition of the animal protein factor and methionine actively making it the equal of any natural animal protein for the feeding of poultry and livestock.

Processor research at many laboratories is now pointed to these problems. Solutions may be a little slow in coming, for here, as in all research, we find out one thing and that is not enough. Research is never finished and it always appears that there are more questions ahead yet to be answered. But these problems are under attack and the chances are good that they can be whipped.

The soybean is still a new crop in the Cornbelt. We have made great strides in our knowledge of how to produce this farm crop, how to process it into oil and meal, how to transform these basic products into many new products with a multitude of uses. Yet, everyone engaged in soybean research—the experiment stations, the regional laboratories, and the industrial scientists alike—will agree that we face many unanswered questions.

It is the function of all three of these groups to persistently attack the problems of the soybean indus-

try. If we are to continue to make progress all of the way from the soil to the end-use of the final products, then "What we don't know we must be willing to try to find out."

Following is a list of research projects at the various state experiment stations as compiled by the Soybean Blue Book.

All state experiment stations in the soybean belt were contacted to obtain the information.

Project numbers and names of workers are included when available.

Alternate Row Planting

The effect of alternate pairs of rows of corn and soybeans in association on total production, project 305, H. Kohnke and O. W. Leutkemeier (Grad. Student). Purdue Agricultural Experiment Station, Lafayette, Ind.

Breeding

Comparison of other varieties with Kingwa for hay. Virginia Agricultural Experiment Station, Morgantown.

Comparison of early and midseason varieties, and selection within segregating populations, D. G. Hanway and T. A. Kiesselbach. Department of agronomy, Nebraska Agricultural Experiment Station, Lincoln 1.

Testing of selections from hybrids of early maturing varieties for grain. Agricultural Experiment Station, Cornell University, Ithaca, N. Y.

T. E. Stoa, agronomist. North Dakota Agricultural Experiment Station, Fargo.

Improvement and recommendation of varieties for agricultural production. West Virginia Agricultural Experiment Station, Morgantown.

Soybean studies, J. C. Anderson and M. P. Singh. New Jersey Agricultural Experiment Station, New Brunswick.

Selection and breeding. Department of agronomy, Texas Agricultural Experiment Station, College Station.

Seed increase of new or improved varieties, project 413, I. J. Johnson. Development of soybean varieties superior in agronomic characters and composition of seed by hybridization and selection, project 719, C. R. Weber and M. G. Weiss. Adaptation of new crops and crop varieties distributed by the station to the different soil and climatic conditions found in the state and increase of seed of such crops and varieties, project 847, J. L. Robinson. Farm crops subsection, Iowa State College, Ames.

Soybean seed production. Florida Agricultural Experiment Station branch, Milton.

Soybean breeding and variety testing. Bankhead Jones project 57, L. E. Thatcher and J. L. Haynes, Wooster; Lewis C. Saboe, Columbus. Ohio Agricultural Experiment Station.

The development by breeding and selection of adapted varieties and strains of soybeans that are suitable for industrial utilization, project 118, G. H. Cutler, A. H. Probst. Testing varieties of small grains, legumes, and miscellaneous field crops, project 130, R. R. Mulvey, George Enfield. Purdue Agricultural Experiment Station, Lafayette, Ind.

Soybean testing and improvement, J. W. Lambert. Division of agronomy and plant genetics, University of Minnesota, St. Paul 1.

Chemical Studies

Effects of fertility level and chemical composition of several soybean varieties, project 213, A. H. Probst and F. A. Frank. Purdue Agricultural Experiment Station, Lafayette, Ind.

Costs of Growing and Harvesting

A study of the practices and costs of growing and harvesting soybeans and the use of small-sized combines in harvesting soybeans and other crops. Illinois Experiment Station, Urbana.

Crop Residue

Crop residue management and mulch tillage experiments, project 236, H. Kohnke, I. D. Mayer, R. B. Hickok and E. R. Baugh. Purdue Agricultural Experiment Station, Lafayette, Ind.

Cultural Practices

Cultural practices of cultivated crops, project 149, R. R. Mulvey and George H. Enfield. Purdue Agricultural Experiment Station, Lafayette, Ind.

Cultural practices on different soil types, state special project 20, D. F. Beard, J. E. Newman, Columbus; L. E. Thatcher, Wooster. Ohio Agricultural Experiment Station.

Defoliation

Defoliation of soybeans, state project 110, E. E. Barnes. Ohio Agricultural Experiment Station, Wooster.

Distance Between Rows

Agronomy department, University of Illinois, Urbana.

Diseases

Plant disease survey of Iowa, prevalence, distribution of losses, project 450, W. F. Bucholtz. Study of soybean diseases and their control, project 883, J. N. Croll, Geo. McNew, botany and plant pathology section, C. R. Weber, farm crops subsection. Iowa Agricultural Experiment Station, Ames.

Study of root rot and seedling blights, primarily those caused by **Rhizoctonia,** and testing of disease reactions of varieties, M. F. Kernkamp. University of Minnesota, University Farm, St. Paul 1.

Edible Varieties

Breeding and evaluation of edible soybeans, O. B. Combs. Department of horticulture, Wisconsin College of Agriculture, Madison 6, Wis.

Selection studies, agronomy department. Increase and distribution of vegetable varieties, agronomy department. Variety tests. Department of horticulture. University of Illinois, Urbana.

Fats and Oils

Adaptation, yield and oil content of new soybean varieties and strains in Oklahoma. Oklahoma Agricultural Experiment Station, Stillwater.

Antioxidants and autoxidation in fats and oils, No. 225, F. W. Quackenbush and C. R. Thompson. Department of agricultural chemistry, Purdue Agricultural Experiment Station, Lafayette, Ind.

Feeding to Livestock

Influence of the method of preparation on the nutritive value of cottonseed meal and soybean meal, project 589. Deficiencies of common swine fattening rations, with special reference to high protein supplements used, project 608. Oklahoma Agricultural Experiment Station, Stillwater.

Soybean oil meal vs. ground soybeans for dairy cattle, state project 163 (Trumbull Co. Exp. Farm) C. F. Monroe, Wooster; Walter Livezey, Cortland. Ohio Agriculture Experiment Station.

Mineral and vitamin deficiencies of livestock rations balanced with soybean oil meal, G. Bohstedt. Department of animal husbandry, College of Agriculture, Madison 6, Wis.

Feeding to Poultry

Feeding and range management of growing turkeys, project 90. Utilization of Indiana grains and proteins and vitamin supplements for growing chicks, project 157. Utilization of Indiana feeds in feeding chickens and turkeys for egg production and hatchability, project 158. Feed efficiency as affected by hereditary and physiological factors, project 190. Supplementary value of pure vitamins and vitamin-rich feeds for corn and soybean oil meal rations for poultry, project 200. Measurement of feed efficiency of corn, oats and wheat products in chick rations, all employing soybean oil meal as a principal ingredient, project 264. J. Holmes Martin. Purdue Agricultural Experiment Station, Lafayette, Ind.

Trypsin inhibitor of raw soybeans. C. W. Ackerson and Raymond Borchers, department of agricultural chemistry; and F. E. Mussehl, department of poultry husbandry. Nebraska Experiment Station, Lincoln 1.

Use of soybean oil meal in broiler production. Animal science department, University of Illinois, Urbana.

Feeding to Swine

Nutritive deficiency of soybean oil meal when fed with corn including amino acids, vitamins and mineral deficiencies. Methods of feeding soybean oil meal to prevent over-consumption. Thiamine deficiency of soybean oil meal for swine and poultry. Animal science department, University of Illinois, Urbana.

Supplementing a corn-soybean oil meal ration with certain vitamins and

amino acids for swine. Hatch project No. 12, W. L. Robison. Ohio Agricultural Experiment Station, Wooster.

Limited acreage for hog grazing. Department of agronomy, Florida Agricultural Experiment Station, Gainesville.

Fertilizers

Influence of soils and crops of fertilization of cereals only, legume hay only, or of all crops in 4-year rotation of corn-soybeans-wheat-clover, project 75, A. J. Oltrogge, agronomy department. Effects of supplementing conventional fertilization with varying amounts of plant nutrients plowed under for corn and other crops, project 147, George H. Enfield and R. R. Mulvey. Response of soybeans to various rates of fertilizers plowed under on certain Indiana soils, project 207, F. A. Frank. Effects of fertility level and chemical composition of several soybean varieties, project 213, A. H. Probst and F. A. Frank. Response of soybeans to phosphate in form of superphosphate and rock phosphate and to nitrogen, project 239, F. A. Frank. Purdue Agricultural Experiment Station, Lafayette, Ind.

Soybean production in relation to fertilizer applications and crop sequence, project 782, A. J. Englehorn and Louis B. Nelson. Rotation and fertilizer studies with corn, soybeans, oats, hay and green manure crops on Clarion and Webster soils at Ames, project 840, A. J. Englehorn and W. H. Pierre. Liming and fertility investigations on the slowly drained prairie soils of northeastern Iowa project 900, H. R. Meldrum and W. H. Pierre. Value of different crop rotations and soil treatments on slowly-drained Carrington silt loam soil, project 940, H. R. Meldrum and W. H. Pierre. Soils subsection, Iowa State College, Ames.

Direct applications to soybeans. Agronomy department, University of Illinois, Urbana.

Manganese fertilizer needs in Indiana, project 281 (primarily on soybeans), B. R. Bertramson, A. J. Ohlrogge and Glen Hemstock. Purdue Agricultural Experiment Station, Lafayette, Ind.

Soybean fertilization with nitrogen, state project 109, C. E. Evans and J. H. Wilson. Ohio Agricultural Experiment Station, Wooster.

Effect of various levels of nitrogen used just previous to planting as side dressing, O. E. Phillips, agronomist. Delaware Experiment Station, Newark.

Department of agronomy, Texas Agricultural Experiment Station, College Station.

Influence of mineral fertilization and liming on stands and production of clover following soybeans, project 210, F. A. Frank. Purdue Agricultural Experiment Station, Lafayette, Ind.

Food

Value of protein of soybean in dietary of adult human subjects. Soybean and soybean products as human food. Home economics department, University of Illinois, Urbana.

Genetic Studies

J. H. Torrie, A. M. Strommen, C. Rydberg. Department of agronomy, College of Agriculture, Madison 6, Wis.

Genetic investigations of soybeans, No. 127, A. H. Probst, H. H. Kramer and Iman Mahmud. Purdue Agricultural Experiment Station, Lafayette, Ind.

Hail Damage to Soybeans

Agronomy department, University of Illinois, Urbana.

Hay

Methods of curing soybean hay, including forced ventilation of haymows and stacks. Study of composition and digestibility of soybean hay as affected by soil nutrients. Department of dairy production, University of Illinois, Urbana.

Hybrids

Soybean breeding with special reference to hybrid behavior. Agronomy department, University of Illinois, Urbana.

Inoculation

Effectiveness of different inoculants. Agronomy department, University of Illinois, Urbana.

T. A. Kiesselbach and W. E. Lyness, department of agronomy. Nebraska Experiment Station, Lincoln 1.

Insects

Insects affecting stored soybeans. Biology and control of grape colapsis. Entomology section, University of Illinois, Urbana.

Nutrition

Physiology and nutrition, Bankhead-Jones project 65, C. E. Evans, J. H. Wilson, R. H. Simon, Wooster; G. W. Volk, Columbus. Ohio Agricultural Experiment Station.

Pod and Bean Number

Factors affecting the number of pods and number of beans in pod. Agronomy department, University of Illinois, Urbana.

Rate and Date of Seeding

Department of agronomy, Texas Agricultural Experiment Station, College Station.

Rate, date and depth of planting. Close drilled versus cultivated rows, widths 21 in., 28 in., 35 in. and 42 in., T. A. Kiesselbach and W. E. Lyness. Department of agronomy, Nebraska Experiment Station, Lincoln 1.

Effect of rate and method of planting on yield and quality, J. H. Torrie, A. M. Strommen, C. Rydberg. Department of agronomy, University of Wisconsin, Madison 6, Wis.

Agronomy department, University of Illinois, Urbana.

Residues

Crop residue management and mulch tillage experiments, project 236, H. Kohnke, I. D. Mayer, R. B. Hickok and E. R. Baugh. Purdue Agricultural Experiment Station, Lafayette, Ind.

Effect of soybean and corn residues and straw mulch on soil. Agronomy department, University of Illinois, Urbana.

Rotations

Establishment of clover and alfalfa in small grain following soybeans. Bankhead-Jones project 50, subproject No. 1, C. J. Willard, Columbus and L. E. Thatcher, J. L. Haynes, Wooster. Soybean rotations and culture, state project 111 and state project 118, Lewis C. Saboe, C. J. Willard, Columbus; L. E. Thatcher, J. L. Haynes, Wooster. Ohio Agricultural Experiment Station.

Comparative studies of various systems of cropping under different soil and climatic conditions, project 142, R. R. Mulvey and George H. Enfield. Purdue Agricultural Experiment Station, Lafayette, Ind.

Crop rotation studies with corn, oats and soybeans versus no soybeans, T. A. Kiesselbach and W. E. Lyness, department of agronomy. Nebraska Experiment Station, Lincoln 1.

Rotations including soybeans. Agronomy department, University of Illinois, Urbana.

Seeding After Soybeans

Getting clover stands following soybeans. Agronomy department, University of Illinois, Urbana.

Influence of mineral fertilization and liming on stands and production of clover following soybeans, project 210, F. A. Frank. Purdue Agricultural Experiment Station, Lafayette, Ind.

Seed Treatment

Legume seed treatment for control of plant diseases, project 530.1. Oklahoma Agricultural Experiment Station, Stillwater.

Influence of seed treatment on stand and yield of soybeans, project 384, R. M. Caldwell and Kirk Athow. Purdue Agricultural Experiment Station, Lafayette, Ind.

Soybean inoculation, Ohio F. E. No. 37, Wm. P. Martin. Ohio Agricultural Experiment Station, Columbus and Wooster.

Silage

Testing of Cornbelt grain varieties for use with corn for silage, R. G. Wiggans, professor of plant breeding, Cornell University Agricultural Experiment Station, Ithaca, N. Y.

Grass and legume silage as supplements in poultry rations, project 259, J. Holmes Martin. Purdue University, Lafayette, Ind.

Soybeans as a silage crop. Department of dairy production, University of Illinois, Urbana.

Soils

Soil and moisture conservation studies, project 124, H. Kohnke, R. B. Hickok, N. L. Stoltenberg, J. L. White and I. D. Mayer, Soil Conservation Service. Influence of soybeans and other crops on soil conditions and growth of subsequent legume crops, project 269, F. A. Frank, H. Kohnke and Ben Fehrman. Comparative studies of various systems of cropping under different soil and climatic conditions, project 142, R. R. Mulvey and George H. Enfield. Studies of the cumulative effects of different systems of soil treatment and crops management upon the fertility of important Indiana soils, project 145, George H. Enfield and R. R. Mulvey. Effects of the tile drainage on the soil and crops grown on Crosby and Brookston silt loam soils, project 280, F. A. Frank, H. Kohnke, S. R. Miles and R. R. Mulvey. The effect of sulfur on the availability of plant nutrients on certain Indiana soils—primarily on soybeans, project 325, B. R. Bertramson, Sam L. Tisdale. Purdue Agricultural Experiment Station, Lafayette, Ind.

Effect of soybeans upon soil properties, state special project 19, J. B. Page. Soybean fertility tests on different soil types, state project 109, J. L. Haynes, C. E. Evans, Wooster; G. W. Volk, Columbus. Ohio Agricultural Experiment Station.

Soy Flour

Soy flour in bakery products (supported by the Soy Flour Association). Study of effects of various types of soy flour on the rate of staling of bread and other bakery products and to determine the constituents of soy flour which have a major influence on dough and bread quality with a view to establishing a basis for improving the baking quality of soy flours, W. F. Geddes. University of Minnesota, University Farm, St. Paul 1.

Soy Protein

Fundamental study of proteins of soybean (supported by Central Soya Co., Inc.). Aim of research to fractionate the proteins of the soybean and determine their physical and chemical properties with view to securing information which may prove of value in developing further industrial uses for soy protein, D. R. Briggs. University of Minnesota, University Farm, St. Paul 1.

Storage

Storage studies including germination and determination of acid number. Agronomy and agricultural engineering departments. Effect of storage of whole and ground soybeans on energy content and protein quality. Animal husbandry department, University of Illinois, Urbana.

Energy and heat requirements in drying of soybeans, ear and shelled corn under mechanically controlled ventilation, project 205, W. T. Miller, D. M. Doty, A. J. Ullstrup and I. D. Mayer. Purdue Agricultural Experiment Station, Lafayette, Ind.

Variety Testing

Vermont Agricultural Experiment Station, Burlington.

Testing of soybean varieties in cooperation with the Regional Laboratory. Experiment Station, Newark, Del.

E. J. Kinney. Agricultural Experiment Station, Cornell University, Ithaca, N. Y.

Oregon State Experiment Station, Corvallis.

Variety and selection test, project 186, C. R. Weber and M. G. Weiss. Farm crops subsection, Iowa State College, Ames.

Weed Control

Weed control in soybeans, state project 119, C. J. Willard, Warren Shaw, Columbus; J. L. Haynes, Wooster. Ohio Agricultural Experiment Station.

—sbd—

1 MILLION SEE MARGARINE FILM

Over 1 million people have now seen the sound film on margarine, Progress in Products, according to R. G. Spears.

The 25-minute 16-mm. sound film was produced jointly by the American Soybean Association and the National Cotton Council of America.

Progress in Products to date has shown 8,590 times in the 48 states, District of Columbia and Canada; and has been seen by 1,034,320 people.

The film has had more showings in Pennsylvania, 750, than any other state with California second with 699. Other leading states with over 400 showings each are Illinois, Indiana, Iowa, New York and Ohio.

Publications

FITTING SOYBEANS IN FARM SYSTEM

Though 20-bushel yields in Ohio are normal, vastly greater yields are entirely possible, according to Ohio authorities. They say yields of from 30 to 45 bushels per acre can be had with proper rotations and fertility and cultural practices.

Soybeans, or any other crop, do not stand by themselves. They must become part of a permanent farming system in order to survive.

The booklet, Puting Soybeans into Permanent Farming, recognizes this and that is the approach from which it is written. Authors are Ohio State University Extension Agronomists E. P. Reed and D. F. Beard and Extension Soil Conservationist J. A. Slipher.

The authors recommend soybeans for the Ohio gray lands of mild slope, certain light brown soils, and the dark corn soils. They do not recommend them on sloping brown and yellow-brown soils which are subject to erosion and where the corn acreage must be held down to make room for enough sod to hold rainwater in check.

"The soybean needs social standing," say the authors. "It needs a rotation with respectability. Sandwiching it in between two or three other more soil degrading crops (common practice) accounts for an unsavory reputation."

The bulletin lists a number of what it calls "delinquent" rotations which bring about a drop in soil productivity due to crop effect; and some "capable" rotations. These build soil productivity or at most result in a slight fall in productivity. Small grains, alfalfa and clover are prominent in these rotations.

Three soybean varieties are now recommended for Ohio: Monroe, Hawkeye and Lincoln. The three now account for from 60 to 70 percent of the state's soybean acreage.

PUTTING SOYBEANS INTO PERMANENT FARMING. By E. P. Reed, J. A. Slipher and D. F. Beard. Bulletin No. 311, Jan. 1950. Agricultural Extension Service, Ohio State University, Columbus, Ohio.

Growth Factor

Hens fed a high-protein diet containing 20 percent casein transmit a growth factor through their eggs to their chicks that is apparently not present when the hens are fed a ration high in soy protein, U. S. Department of Agriculture workers have found.

A group of hens in two separate pens were fed, alternately, low-and high-protein rations. Soybean oil meal and casein were added to the basal diet to make the high-protein diets.

The eggs produced were incubated and the chicks were fed a chick mash. Their weight gains were recorded 28 days after hatching.

It was found that hens fed the ration containing 20 percent casein transmitted a growth factor through their eggs to the chicks.

With soybean proteins in the ration the same effect was not observed.

The addition of dried cow manure to the chick mash slightly accelerated the growth of chicks from hens fed a low-protein ration. But it had no affect on the growth of chicks from hens fed the high-protein-soybean diet.

A GROWTH FACTOR TRANSMITTED BY THE HEN THROUGH THE EGG TO HER PROGENY. By Frank A. Csonka and M. W. Olsen, Bureau of Human Nutrition and Home Economics and Bureau of Animal Industry. Journal of Nutrition, Philadelphia, Pa. Jan. 10, 1950.

Meal vs. Tankage

Soybean meal can replace tankage for fattening pigs when they have good pasture, Indiana and Pennsylvania tests show. Pigs on shelled corn and pasture at Pennsylvania made faster gains when soybean oil meal was their only protein than when meal was mixed with tankage. Mineral mixture was 2 parts ground limestone and 1 part salt.

All feed was self-fed. Pigs ate more soybean oil meal when it was served alone than when it was mixed with tankage. Daily gain was 1.24 pounds for soybean oil meal compared with 1.10 pounds for the protein mixture.

Weanling pigs on alfalfa pasture made the same daily gain with soybean meal as they did with tankage, in Purdue University tests. Ration for pigs that got tankage was ground corn, 70 pounds; wheat middlings, 20 pounds; 60 percent tankage, 10 pounds; and mineral mixture. The soybean ration was corn, 68 pounds; middlings, 20 pounds; soybean meal, 12 pounds; and mineral.

Soybean meal compared favorably with tankage in rations for dams of pigs in the Purdue experiment. The mature sows were on bluegrass pasture for 5 months before they were bred for spring litters. They

1st in the Nation

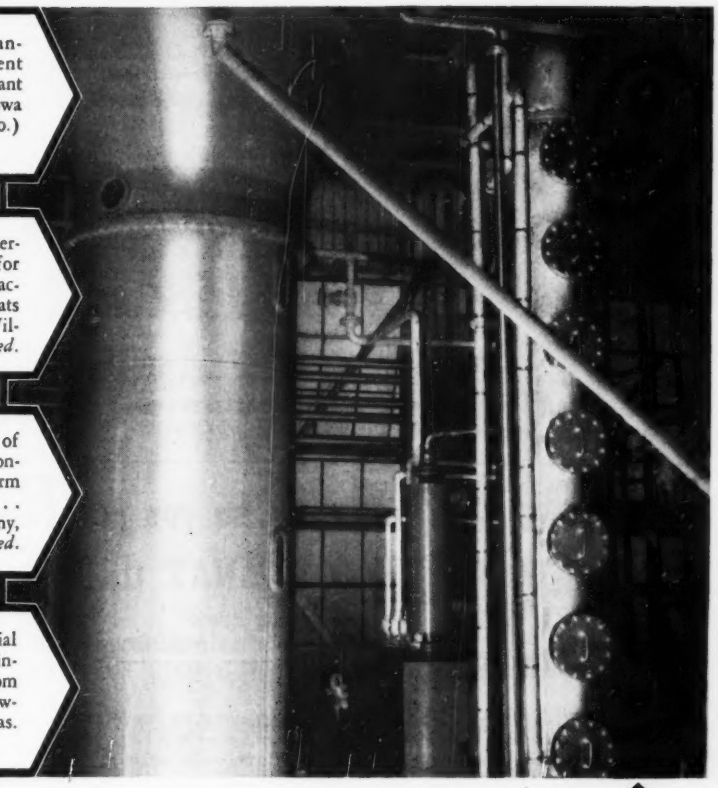
IN CONTINUOUS SOLVENT EXTRACTION

SOYBEANS First American-made continuous, counter-current soybean oil solvent extraction plant . . . Cargill, Inc., Cedar Rapids, Iowa (formerly Honeymead Products Co.) *Allis-Chalmers equipped.*

COTTONSEED First commercially successful unit in the world for direct and continuous solvent extraction of oil from cottonseed meats . . . Delta Products Company, Wilson, Ark. *Allis-Chalmers equipped.*

CORN GERM First unit of American design to extract oil continuously from prepressed corn germ by means of petroleum solvents . . . Corn Products Refining Company, Argo, Ill. *Allis-Chalmers equipped.*

RICE BRAN First commercial installation in the world for continuous solvent extraction of oil from rice bran . . . American Rice Growers Coop. Assn., Houston, Texas. *Allis-Chalmers equipped.*



YES, ALLIS-CHALMERS was first in the nation to provide *American-made* equipment to *American* mills for the continuous solvent extraction of soybean, cottonseed, corn germ, and rice bran oils. And with this long line of "firsts" has come merited recognition to A-C as an authority on solvent extraction equipment and techniques.

It will pay you to take advantage of this vast pioneering experience. Learn from Allis-Chalmers how *production-proved* A-C equipment can mean greater dollar return in your mill. When you turn to Allis-Chalmers, you get straight facts on continuous solvent extraction processes — backed by long years of sound engineering and production experience.

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were divided for winter dry lot feeding. One group got shelled corn, whole oats, tankage and mineral. For the other lot soybean meal was substituted for all the tankage.

Litters from sows on soybean meal averaged 11.45 pigs compared with 11.26 for those fed tankage. Pigs from sows getting the meal averaged 2.73 pounds, while those from dams fed tankage weighed 2.62 pounds.

In the suckling ration, corn was ground and wheat middlings were substituted for oats. Proportions of tankage and soybean meal were increased. Sows on meal weaned 8.61 pigs a litter while those on tankage brought only 7.68 pigs to weaning age. At 8 weeks pigs from the meal-fed lot weighed 1 pound less than those from sows that got tankage.

Hogs eat excessive amounts of soybean oil meal when it is self-fed alone. To hold down consumption, Purdue swinemen add 1 pound of simple mineral mixture to 5 pounds of meal. At that proportion the shote will eat two-thirds pounds of meal a day, which is enough for its protein requirements.

MAKES MEAL EQUAL TANKAGE. Capper's Farmer, Jan. 1950.

Storage

The nutritive value of proteins of cereal grains stored under conditions that prevent insect infestation and mold growth is not appreciably altered over long periods of time.

But this is not true for soybeans. The protein of whole soybeans may suffer considerable nutritional damage after 1 year of storage, workers at the University of Illinois and elsewhere have found out. The distinction between the two, they believe, is due to the fact that the living part of the seed, the embryo, is only a small part of the cereal seed, but a predominant part of the legume seed.

Soybeans stored for almost 3 years as raw whole beans deteriorated significantly in both the digestibility and biological value of their nitrogen. Under the conditions of storage, the average impairment in digestibility of nitrogen amounted to 10 percent, while impairment in biological value amounted to 13 percent.

THE EFFECT OF STORAGE ON THE NUTRITIONAL QUALITIES OF THE PROTEINS OF WHEAT, CORN AND SOYBEANS. By H. H. Mitchell and Jessie R. Beadles, division of animal nutrition, University of Illinois, Urbana. Journal of Nutrition, Philadelphia, Pa. Jan. 10, 1950.

Miscellaneous

RATION BISCUITS. V. EFECTS OF KIND AND CONCENTRATION OF VARIOUS CONSTITUENTS ON KEEPING QUALITY. By H. J. Lips, J. B. Marshall, W. Harold White and G. A. Grant. Canadian Journal of Research, section F, Ottawa, Canada. Nov. 1949.

The article describes experiments to determine the effect of some of the more commonly used ingredients, including defatted soy flour, singly and in combination, on the keeping quality of stored biscuit material.

ANIMAL PROTEIN FACTORS. 8-page leaflet. Ralston Purina Co., nutrition research division, St. Louis, Mo.

In addition to a summary of information on APF, the leaflet contains a list of 33 references on the subject.

FURTHER STUDIES ON THE RELATION OF SOYBEANS TO

THE VITAMIN A REQUIREMENTS OF DAIRY CATTLE. By M. F. Ellmore and J. C. Shaw. University of Maryland. Journal of Dairy Science, Aug. 1949.

Effect on plasma carotene and plasma Vitamin A of feeding calves a ration containing 30 percent raw soybeans.

MIXING FERTILIZERS ON THE FARM. Farmers Bulletin No. 2007. U. S. Department of Agriculture, Washington 25, D. C.

STABILITY OF VITAMIN C IN SOYBEAN MILK AS COMPARED TO COW MILK. Y. B. Rangnekar, S. S. De and V. Subrahmanyan. Ann. Biochem. and Exptl. Med. (India) 105-8. 1948.

Vitamin C is more stable in soy milk than in cow's milk, according to these workers.

EFFECTS OF LIMING ON RESPONSE TO MINOR ELEMENTS OF CRIMSON CLOVER, SOYBEANS AND ALYCE CLOVER. By Franklin L. Davis. Agronomy Journal. 41, 368-74. 1949.

THE CANADIAN VEGETABLE OILS INDUSTRY. By N. H. Grade, National Research Laboratories, Ottawa, and H. W. Lemon, Ontario Research Foundation, Toronto. Agricultural Institute Review, Ottawa, Canada.

PROTECTIVE EFFECTS OF SOYBEAN MEAL FOR THE IMMATURE HYPERTHYROID RAT. By Benjamin H. Ershoff. University of Southern California. Journal of Nutrition, Philadelphia, Pa. Oct. 10, 1949.

WABASH SOYBEANS FOR INDIANA. Circular 354. By A. H. Probst and G. H. Cutler. Purdue University Agricultural Experiment Station, Lafayette, Ind.

Wabash is a high yielding variety suitable for southern and southwestern Indiana and areas of like latitude in states further west.

It is a pure line selection made in 1941 by Probst and Cutler.

MONOSODIUM GLUTAMATE. By Robert S. Aries and William Copulsky. Chemical Engineering, New York City. Dec. 1949.

EFFECT OF TRYPTOPHAN DEFICIENCY ON THE PIG. By W. M. Beeson, E. T. Mertz and D. C. Shelton. Journal of Animal Science. Nov. 1949.

TUNG OIL, by Edmund C. Wood, head chemicals division, Office of Domestic Commerce, U. S. Department of Commerce, Washington, D. C.

THE AMINO ACID REQUIREMENTS OF SWINE, LYSINE. By E. T. Mertz, D. C. Shelton and W. M. Beeson. Journal of Animal Science. Nov. 1949.

EFFECT OF SUPPLEMENTAL METHIONINE ON THE NUTRITIVE VALUE OF DIETS CONTAINING CONCENTRATES OF THE SOYBEAN TRYPSIN INHIBITOR. By I. E. Liener, H. J. Deuel, Jr. and H. L. Fevold. Journal of Nutrition. Nov. 10, 1949.

—sbd—

SOYA IN PRINTING

Alpha soya protein is being tested as a substitute for albumin in the production of zinc or aluminum lithographic printing plates, according to January Printing.

It is said to produce a firmly adhering image and to be at least twice as light sensitive as egg albumin. Aside from speed, the main advantage is its very low cost.

GRITS and FLAKES... FROM THE WORLD OF SOY

The first automatic sprinkler system using Aer-O-Foam (known as "bean soup" by the Navy during the war) has been installed by Schenectady (N. Y.) Varnish Co., according to Business Week. The system using the soybean base was installed by the Schenectady firm to get better protection and a lower insurance rate.

* * * *

Union Special Machine Co., Chicago, will exhibit its style 21800 H bag machine with style 80600 H sewing head at the meeting of the Association of Operative Millers in St. Louis, May 1-5. The unit is specially designed for making tape-bound closures on multiwall paper bags.

* * * *

Promotions announced by the Allis-Chalmers Co., Milwaukee, Wis., include Frank R. Freyler from district manager of the Philadelphia territory to manager of the Mid-Atlantic region. Arthur D. Brown succeeds Freyler as manager of the Philadelphia district office. R. N. Landreth is the new manager of the Washington office.

* * * *

Formal opening of the Glidden Co.'s new soya extraction plant in Indianapolis, Ind., was held Feb. 7.

* * * *

The Caledonia Co., Ltd., Montreal and Toronto, Canada, has been appointed sales representative for the chemical division of General Mills, Inc., Minneapolis, for eastern Canada. The firm will handle the company's complete line of vegetable, animal and marine fats and oils as well as all organic chemical derivatives for the technical trade.

* * * *

C. Rodney Neff, vice president and treasurer of the Neff & Fry Co., Camden, Ohio, recently succumbed to shock and pulmonary injuries suffered when his car crashed into a truck standing on the highway near New Iberia, La.

* * * *

Massey-Harris Co., of Racine, Wis., has just announced that its 1950 buyer's guide is ready for distribution. Printed in four colors, this 36-page guide includes photos and descriptions of nearly all of the company's line of farm machines and implements. Write Dept. B for free copy.

* * * *

R. G. Brierley, assistant vice president of Archer-Daniels-Midland Co., Minneapolis, and Kenneth Shuman, Glidden Co., Indianapolis, left Feb. 16 for a 4-week trip through Germany.

ARTHUR LARGE RETIRES

Arthur W. Large, general agricultural agent for the Rock Island Railroad, retired Dec. 31 after 45 years service with the Road.

Russell N. Aves has been appointed agricultural agent to succeed Large, with headquarters at Chicago.

Large was employed by the Rock Island in 1905. He served in various positions in the passenger department of the company and was assigned to immigration work. In earlier days the railroads were active in bringing new settlers to the great plains country in the West. Large was closely associated with this work and had the pleasure of observing progress to their present high state of development, the states from the Mississippi River to the Rocky Mountains and from the Canadian border to the Gulf of Mexico.

In 1922 Large was appointed agricultural agent and some 14 years ago was promoted to the position of general agricultural agent.

He was greatly interested in the development of soybean production and gave freely of his time to this project.

Aves is a graduate of Iowa State College at Ames, Iowa. He was with the U. S. Army from 1941 to 1946, with 2½ years in the Pacific area. He was employed by the Doane Agricultural Service for 2 years as farm manager.

THE RIGHT TOOL...

for the right purpose, that's PRE-TESTED NOD-O-GEN — the RIGHT inoculant. Scientifically prepared of specially selected multiple strains, in the famous Dickinson soil bacteriological laboratories. Preparation of PRE-TESTED NOD-O-GEN has been worked out after long experimentation. Customer acceptance and use, substantiates our belief that PRE-TESTED NOD-O-GEN is the most scientific and reliable legume inoculant.

DEALERS, here are the profitable results your farmer customers will get by inoculation of their legume crops with PRE-TESTED NOD-O-GEN . . . better stands . . . bigger crops . . . increased value of crops for feeding . . . added fertility to the soil. You will be doing yourself and your customers a profitable favor by selling PRE-TESTED NOD-O-GEN that is safe and easy to use, is inexpensive and absolutely reliable. Write for the name of your nearest jobber. PRE-TESTED NOD-O-GEN is packed in practical size packages for all common legumes. Special cultures are available for little known but promising legume.

RIGHT ACCESSORIES TO ROUND OUT YOUR STOCK

2,4-D Weed Killers
Liquid or powder forms. Regular strength and concentrates. Amines or esters. A complete assortment. 2 oz. to — carloads.

Hormones
Fruitone, Rootone, Transplantone, Tubertone.

Seed Treatment Chemicals
Ceresan, Arasan, Tersan, Semesan Bel, Spergon, etc.

Rat Killers
Rodan containing DuPont's ANTU.

Soil-Testing Kits
Sudbury — Wide range of sizes.

Sprout Inhibitors
Barsprout for all root crops, particularly potatoes, enables storage of "old" potatoes well up into spring.

Fertilizer
Ford Ammonium Sulphate for horticultural use — 10 lbs., 50 lbs., 100 lbs.

Sprayers
"GAT" sprayers for home lawn use.

FARM LABORATORY DIVISION

THE ALBERT DICKINSON CO., CHICAGO 90, ILLINOIS, P.O. BOX 788

SOUTHERN OFFICE AND WAREHOUSE: Jackson, Mississippi

Founded 1854

NOD-O-GEN

The Pre-Tested Inoculator
The Crop and Profit "Pepper Upper"

Seventy-five head of livestock perished when the large dairy barn on the Ersel Walley farm near Paulding, Ohio, burned recently. Loss was estimated at over $17,000. Fire was believed to have started from defective wiring in a pig brooder.

* * * *

Thomas C. Knudsen, manager and chief engineer of Allis-Chalmers' texrope drive department, Milwaukee, Wis., has announced an oil-resisting high-capacity super-7 texrope belt with a 40 percent higher rating than the standard belt.

* * * *

Link-Belt Co., Chicago, Ill., announces that H. Walter Regensburger has been appointed chief engineer of its general engineering department to succeed Harry L. Strube, who has retired. The department has been transferred from Philadelphia to 301 West Pershing Road, Chicago.

* * * *

Ray Bates, managing editor of Prairie Farmer, has left that paper to join the advertising department of E. I. du Pont de Nemours & Co., Wilmington, Del.

* * * *

A. E. Staley Manufacturing Co., Decatur, Ill., has announced the appointment of the following representatives of the package sales department: Edward W. Paull, Pennsylvania and Ohio; Glenn M. Cason, Iowa; James A. Guerry, North Carolina; Myron H. Hooker, Colorado and James L. McKellar, Florida.

* * * *

In a move to stimulate the salvage value of used multiwall paper bags, members of the Paper Shipping Sack Manufacturers' Association have approved a program for marking with a standard symbol all multiwall bags made of natural kraft paper which are suitable for repulping.

* * * *

Ralston Purina Co., St. Louis, Mo., will build a new feed mill at Macon, Ga. The new mill is expected to have a capacity in excess of 100,000 tons annually and will employ local labor. Much of the grain and proteins used in feed manufacture will be purchased locally, according to Donald Danforth, president.

HEADS OIL OPERATION

L. Y. Pulliam, vice president of the Durkee Famous Foods division of the Glidden Co., has been placed in charge of Durkee's Louisville plant and refinery. He will also direct the company's edible vegetable oil business throughout the South. He started with Glidden as an office boy in 1918. After serving as general manager of Durkee plants in Louisville and Elmhurst, N. Y., he was named a vice president of the company in January 1947.

Du Pont "Arasan" boosts soybean stands and yields

IT PAYS TO TREAT SEED WITH "ARASAN" BEFORE INOCULATION

Even the best seed does better when you protect it from seed rot, damping-off, seedling blight, mildew and other diseases with "Arasan" seed disinfectant. And you can treat seed before inoculation, since "Arasan" does not interfere with nodulation.

Soybean stands are often better with Du Pont "Arasan." In Ohio Experiment Station tests "Arasan" seed treatment increased stand 42.8%. In tests on a Virginia farm where low-viability seed was planted, "Arasan" increased stands by 103%.

Better stands make better yields. In seasons when weather is bad for germination, or when seed has low viability, "Arasan" is especially helpful in improving stand and yield.

FOR BEST RESULTS *be sure your soybean seed is treated with "Arasan" before inoculation. You can treat the seed yourself by following directions on the can of "Arasan," or your local seed treater can do it for you. For small grains and cotton, be sure your seed is treated with Du Pont "Ceresan" seed disinfectant. For full details, write to Du Pont, Semesan Section, Wilmington 98, Del.*

ARASAN and CERESAN are registered trademarks of E. I. du Pont de Nemours & Co. (Inc.)

With all chemicals always follow directions for application. Where warning statements on use of product are given, read them carefully.

DU PONT

REG. U.S. PAT. OFF.

ARASAN®

Disinfects and Protects Seed

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Tune in Du Pont "Cavalcade of America"—Tuesday Nights, NBC Coast to Coast

W. D. McLean, assistant director of the burlap department of Bemis Bro. Bag Co., Boston, recently made a trip to Calcutta, India, to get a first-hand picture of the confused supply situation in jute and burlap.

* * * *

Program for the spring meeting of the American Oil Chemists' Society in Atlanta, Ga., May 1-3 was announced in the March issue of the Society's Journal.

* * * *

George F. Atkinson, manager of the Louisville plant and refinery of Durkee Famous Foods, has been appointed executive assistant to the president of the Glidden Co., Dwight P. Joyce.

* * * *

The paper "Band-Label" for textile bags has now been successfully adapted to heavy weight burlap bags. Tests have been made by the Quaker Oats Co., in cooperation with Bemis Bro. Bag Co., St. Louis, Mo.

* * * *

Dearborn Motors Corp., Detroit, Mich., announces a new "Dearborn-Peoria" grain drill now in production at the Wood Bros. plant, Des Moines, Iowa. The drill is a combination grain and fertilizer drill and sows small grains as well as soybeans, peas and edible beans.

* * * *

A 68-page farmer's handbook and almanac has been published by the B. F. Goodrich Co., Akron, Ohio, and is available upon request to principal headquarters.

* * * *

A representative group of field men for Burrows Equipment Co., 1316-D Sherman Ave., Evanston, Ill., recently held a get-together meeting in the company's offices. Round-table discussions were held on the 1950 program for the "Universal Moisture Tester" and installations that have been made.

* * * *

Appointment of Joseph N. Fritsch as advertising manager of the feed mill division, Glidden Co., Cleveland, Ohio, was announced recently.

* * * *

Armco Steel Corp., Middletown, Ohio, has just published a pamphlet, "Let's Save Our Crops," telling how money can be made by crop drying and how to dry various crops in both steel and wood buildings. Copy may be obtained by mailing postcard to the firm.

* * * *

Archer-Daniels-Midland Co., Minneapolis, has announced the appointment of Lawrence-Michaels, Inc., of that city as their broker for soybean salad oils. The brokerage will handle sale of soybean salad oils to the fish canning industry in the New England states.

* * * *

Managers and sales managers of Chase Bag Co.'s 29 factories and sale offices throughout the country convened in Chicago recently for the company's annual management conference.

* * * *

The Eriez Manufacturing Co., Erie, Pa., recently announced the promotion of R. A. Roosevelt to the position of sales manager.

DELWICHE PASSES

E. J. DELWICHE

E. J. Delwiche, for more than 40 years a member of the University of Wisconsin agronomy staff and director of branch stations for the northern Wisconsin area, passed away Jan. 20.

Delwiche, who retired as professor emeritus in 1945, spent his life helping to develop the agriculture of northern Wisconsin.

His particular interest was peas and corn but he also worked with soybeans and produced three bulletins on the subject, in cooperation with other men. One was published as long ago as 1914.

He was described as the outstanding breeder of canning and other peas in the United States.

During the years Delwiche was at the Wisconsin station probably 200 strains of soybeans were tested there.

The Hance Vac-A-Way seed cleaner and grader manufactured by the Hance Manufacturing Co., Westerville, Ohio, is pictured in a motion picture released by the General Electric Co. and entitled "Electrified Farming." The movie is a 16 mm sound and color film which runs 25 minutes.

* * * *

A four-screw-press plant for processing soybeans is being erected by Sikeston Cotton Oil Mill, Sikeston, Mo. P. B. Bartmess is the manager.

* * * *

Chester B. Biddle, American Soybean Association director from Indiana, has been elected president of the Purdue Agricultural Alumni Association for 1950.

* * * *

Allied Mills, Inc., is adding 650,000 bushels of storage to the plant at Taylorville, Ill.

* * * *

John H. Caldwell, Jr., Marion, Ind., for 13 years president of the Hoosier Soybean Mills and the Vi-D-Co., vitamin products manufacturing firm, died in his sleep at his home recently.

* * * *

The O'Brien Industrial Equipment Co., 1295 Folsom St., San Francisco, has been appointed sales representative for the Eriez Manufacturing Co., Erie, Pa., producers of magnetic equipment.

* * * *

A 4-page, 3-color bulletin on permanent magnetic separators has just been published by the Bauer Bros Co., 1723 Sheridan Ave., Springfield, Ohio. It describes separators for chutes, conveyor belts and picking tables and magnetic grates for hopper bottoms and floor openings.

* * * *

A new pellet crumbelizer, designed for use with any make of pellet mill or for use as an integral unit with feeder attachments, is announced by Sprout, Waldron & Co., Inc., Muncy, Pa. Write for Bulletin 4.

NEW STORAGE

Allen-Davis, Matthews, Mo., has installed five bolted steel grain tanks with a capacity of 14,100 bushels each, complete with elevating and conveying equipment.

This complete installation including the tanks was furnished by the Dabney-Alcott Supply Co., Memphis, Tenn.

Among recent installations of storage tanks, elevating and conveying equipment made by this firm are W. A. Gemeinhardt Grain Co., Matthews, Mo.; Mount Level Farms, East Prairie, Mo.; Danny's Cotton Co., Qulin, Mo.; Boeving Bros. at Campbell, Mo., Qulin, Mo., and Poplar Bluff, Mo., and Black Gin Co., Olive Branch, Ill.

—s b d—

OVEN BAKED BEANS

Puritan Sales Corporation, Portland, Maine, is introducing to the market "Puritan Brick Oven Baked Soybeans."

The Domina process plus the recipe for oven baked soybeans, which has been exclusively licensed to Puritan Sales Corp., controls the flavor so that the firm's soybeans and pea beans can be distinguished only by the difference in texture.

WASHINGTON Digest

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

PRICE PROGRAM. Two major changes in the soybean price support program for 1950 can be anticipated. One is a substantially lower loan rate than the $2.11 a bushel this year. The other is the dropping of Commodity Credit Corporation financing of storage.

As the 1950 loan program is shaping now, a rate no higher than $1.75 a bushel next fall should be anticipated, and it might be down to around $1.50 a bushel.

The higher figure represents approximately 70 percent of the new soybean parity; the lower figure about 60 percent.

There are at least three reasons to anticipate a relatively low rate: The decision to have no acreage allotments, an anticipated decline in exports of major vegetable oils starting next fall, and the fact that CCC is attempting to cut costs wherever possible.

The recommendation on 1950 soybean support has gone to the CCC board. The board had not acted on it at press time. Officials intend to get the announcement out well ahead of planting time in the main soybean belt.

But it probably will be held up until Congress acts on the CCC bid for $2 billion more in price support loan funds.

There is no evidence to support rumors that the loan program will be dropped this year because of a lack of funds. You can put it down that CCC will get more money, though legislation may not get through before the end of March.

Neither is there any evidence to substantiate the report that some method of acreage control other than acreage allotments will be adopted for soybeans this year.

It was Secretary Brannan himself who decided against allotments—this year. When allotments first were proposed, most of the top Production and Marketing Administration officials favored control in some form.

Brannan vetoed the idea, and that was that. Brannan is not the type to reverse his field, once he has taken a stand.

There is some feeling here that the no allotment decision may be borrowing trouble for the future. At the same time, it's recognized that control programs are frequently unworkable until trouble begins.

Whatever the 1950 loan rate for soybeans turns out to be, you can be fairly certain that if you take out a loan next fall you'll have to pay storage charges yourself.

CCC now pays storage charges only on soybeans, wheat and flaxseed among the grains, and on cotton. There has been agitation nearly every year to make the storage program uniform—either finance storage for all the crops, or for none. CCC storage payments were nearly dropped a year ago.

Now the question is up again—even for cotton, one of the hardest crops on which to make it work. The most unlikely possibility is that the old system of CCC financing will be kept.

It will mean this: If you get a farm loan on soybeans next season, you would receive the full loan rate, but pay storage yourself—no 7-cent payment. If you get a warehouse loan on soybeans, you would either pay the warehouse charges and obtain the full loan rate, or have the charges deducted from your loan.

Its effect would be to reduce the value of the loan by the amount of the storage now financed by CCC—7 cents for farm loans, and 10 to 11½ cents, depending on area, for warehouse loans. This is the way other grains are handled now.

A cottonseed support program for 1950 also is in the works. PMA officials want to stick close to a loan program only. But they recognize this is not practical in the high moisture areas. So a combination loan and seed purchase program is probable.

The cottonseed loan rate will be in line with that for soybeans. Officials are now working out competitive rates on by products of both oil seeds.

PRICE PEAK. There's some feeling here that the peak in soybean prices this season will come earlier than a year ago—probably in May or early June. No big bulge in prices is anticipated in July such as occurred last year.

Export demand will continue strong through the spring months, officials say. After June, the new-crop outlook will tend to hold prices down. Also, it's figured processors will keep their inventories as low as possible until new beans are available.

Even so, officials think we'll be scraping the bottom of the barrel by the end of the marketing season, and stocks will be unusually low.

Soybeans are expected to break sharply in price about the time the new crop comes on—down to around support level.

The effect of a decline in farm exports will begin to be felt by then, officials think. The coming sharp cut in funds for ECA and the Army is the major reason for smaller exports.

Also, some unemployment is beginning to show up in Europe. The worst of the shortage period in Europe will be over.

Soybeans, lard, and cottonseed oil all will feel the effects of a smaller export market. These are most heavily dependent on ECA and Army funds.

On the other hand lower U. S.

survey proves preference for meal packed in PAPER bags

Major cottonseed oil mills in Arkansas and Louisiana were included in a recent survey of meal-packing methods. Among other facts, it disclosed that:

Greater output of meal at lower man-hour cost is assured through the one-man St. Regis packaging system.

Farmers, feeders, ginners and dealers prefer meal packed in clean, easy-handling St. Regis Multiwall Paper Bags.

These advantages have led a steadily growing number of mills to use a combination of St. Regis Multiwalls and St. Regis Valve Packing equipment for their meal packaging.

Don't delay in finding out how much *you* would gain in operating efficiency, lower packaging costs and greater customer good will by turning to St. Regis Multiwall Paper Bags *this year*. The nearest St. Regis Sales Office will be glad to give you the facts.

SALES SUBSIDIARY OF ST. REGIS PAPER COMPANY

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YOU BUY PROTECTION WHEN YOU BUY MULTIWALLS

prices will make the smaller dollar supply go farther, and this should help to soften the decline, especially for soybean seed.

MARGARINE. The margarine tax repeal bill is expected to be signed by not later than the end of March.

For all practical purposes the battle of Federal tax repeal was over early in March. House and Senate conferees had agreed on main provisions of the new bill. Only the formality of clearing both houses, and signature by the President, remained.

It inaugurates under the Food and Drug Administration certain consumer safeguards. Public eating places must either post a sign that margarine is served, or so signify on the menu.

Margarine served in public eating places must either be stamped as such or served in a triangular shape. Food and Drug has the usual authority to see that neither butter nor margarine is made of impure substances.

Attempts to force margarine to be sold in triangular shaped packages were beaten down. However, it may not be sold in packages of more than 1 pound, though half and quarter pound packages may be sold.

One of the more significant provisions, so far as manufacturers are concerned, is that dairy terms may not be used in advertising margarine.

The repeal law is to become effective July 1, 1950. At that time consumers presumably will be able to buy colored margarine for no more than they are now paying for white.

The margarine bill represents pretty much a clear-cut victory. The few limitations which remain are considered minor.

A SURPLUS FROM 1950 SOYBEAN CROP?

With more soybean acres in prospect for 1950 the National Soybean Crop Improvement Council is on the job with grass roots meetings in Minnesota, Iowa and Missouri this winter.

The team holding the Iowa meetings in February was J. A. Calland, Decatur, Ind., managing director of the Council and C. R. Weber, Ames, Iowa, agronomist of the U. S. Regional Soybean Laboratory. The meetings were sponsored by the Iowa Soybean Processors Association.

Two hundred farmers and other interested people attended a meeting at Mason City. Almost 100 traveled over icy roads to a similar gathering at Iowa Falls.

Subjects Weber and Calland discussed:

1—Will there be a surplus of soybeans in 1950?

2—The perennial wild statements made about soybeans.

3—Taking the "bugs" out of soybean production and harvesting.

Calland guessed there may be 3½ million more soybean acres in 1950. Iowa may pick up ½ million acres, to partially replace the probable million being taken out of corn. The Midsouth may switch another ¾ million from cotton to soybeans. This coming season the nation may grow 13.4 million acres of soybeans compared to 9.9 last year, according to Calland's figures.

Will such an acreage mean a great surplus of beans? Not if we have an average yield instead of the bumper crop of 1949, according to Calland. With a 10-year-average yield of 18.7 bushels, it would require 12 million acres to equal the 1949 crop—which produced no surplus beans.

The additional 1½ million acres might grow 23 million more beans than were grown in 1949. "As yet it doesn't look like we will have too many soybeans in 1950," said Calland.

But whether the 1950 crop produces a surplus depends largely on whether the oil meal from the beans can be sold. And that in turn largely depends on the livestock feeding program. If all livestock and poultry were fed enough protein from a nutritional standpoint there would be a market for twice as much soybean oil meal as is now produced, according to Calland.

"Feeding a balanced ration makes the feeder money in two ways—it saves corn and it increases the market for soybeans."

Weber said Iowa recommended varieties are Earlyana, Hawkeye, Lincoln and Adams. Seed of the new Adams variety, the highest oil yielder ever released in the United States, will be available this year in all Iowa counties as far north as U. S. Highway 20.

To better yield and control erosion Weber suggested:

1—Plant in rows as close together as you can.

2—Control erosion with solid planting if the slope of your field is more than 3 percent. Contour if the slope is over 8 percent.

Agronomists are not sure that solid plantings would not produce higher yields than rows if weeds could be controlled completely, he said.

And a word about harvest losses. In order to get all soybeans possible with the combine, keep the ground as level as possible. This means use of the harrow and rotary hoe, and perhaps only one time over with the cultivator, Weber suggested.

--- MARKET STREET ---

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate: 5c per word per issue. Minimum insertion $1.00.

FOR SALE—OIL MILL EQUIPMENT. Anderson Expellers, French Screw Presses all models, as is or rebuilt for specific materials. Pittock and Associates, Glen Riddle, Penna.

FOR SALE OR LEASE—Soybean plant, with wonderful money making record, 25,000 feet bag storage, and 75,000 bushel overhead bin storage, track scale, sprinkler system, etc. Would also make ideal feed plant. Write Louisville Seed Company, Louisville 2, Kentucky.

FOR SALE—1000 bu. Hawkeye seed beans, grown in Mower County, Minnesota, from certified seed. $3.00 per bu. in 20 bu. lots. Martin Bustad, Austin, Minn.

SEED DIRECTORY

A charge of $1 will be made to subscribers for listing in the April issue. Quantity for sale and variety are included.

ARKANSAS

Burdette—Hale Seed Farms, 2,000 bu. certified Hale Ogden 2.

Stuttgart—Jacob Hartz Seed Co., Inc., P.O. Box 109, Red Tanner, O-Too-Tan, Brown Biloxi, Mamloxi, Volstate.

Stuttgart—E. B. Swindler, Box 627.

ILLINOIS

Bloomington—Funk Bros. Seed Co., certified Hawkeye, Lincoln, Wabash.

Blue Island—Irvin Holl, 1665 Broadway, 450 bu. non-certified Hawkeye.

Cantrall—J. Harold Canterbury, 1,500 bu. certified Hawkeye, 800 bu. certified Lincoln, 2,000 bu. certified Wabash.

Capron—John W. Sjostrom, Rt. 1, 1,000 bu. certified Hawkeye.

Carthage—Junior Dittmer, 1,000 bu. certified Wabash, 300 bu. certified Hawkeye, 300 bu. certified Lincoln from hand selected seed.

Charleston—Dale C. White, Rt. 2, 400 bu. certified Wabash. Will deliver.

Fairmount — Trisler Seed Farms, truck or carload lots of certified Wabash, Lincoln, Hawkeye.

Gibson City—Noble Brothers, certified and uncertified Hawkeye, Wabash, Lincoln and black soybeans.

Kansas—Harvey L. Washburn, 1,000 bu. certified Wabash.

Manhattan—Earl Keniston, Route 1, 500 bu. certified Hawkeye.

Orland Park—James Tilsy, 167 St. & 118 Ave., 1,800 bu. certified Hawkeye.

Pontiac—Pike Hybrid Corn Co., carload and truck lots, certified Hawkeye, Lincoln, Wabash, carload and truck lots, non-certified Bavenger.

Roseville—Knox College Farms, Samuel E. LaGrow, Box 384, 1,400 bu. certified Hawkeye, 600 bu. certified Lincoln.

San Jose—Kelly Seed Co., 15,000 bu. non-certified Lincoln, 8,000 bu. non-certified Hawkeye, 5,000 bu. certified Hawkeye.

Villa Grove—Turner Seed & Supply, certified Hawkeye, Wabash, Lincoln; non-certified Hawkeye and Lincoln. Truck or car lots.

Ursa—Frank W. Lewis, blue tag certified soybean seed, 2,800 bu. Hawkeye, 2,300 bu. Wabash, 2,650 bu. Lincoln.

Woodstock—Pell-Bari Farms, Inc., 305 Clay St., 20,000 bu. certified Hawkeye.

INDIANA

Anderson—Roy Scott, Rt. 5, 1,000 bu. certified Hawkeye, 500 bu. certified Lincoln.

Cedar Lake—Frank De Vries, 2,000 bu. certified Hawkeye.

Chandler—Bernard V. Wagner, Rt. 2, 3,000 bu. certified Wabash.

Remington—Chester B. Biddle, 1,200 bu. certified Hawkeye.

Remington—Silver Lane Farms, 2,500 bu. certified Lincoln, 5,000 bu. certified Hawkeye, 1,500 bu. certified Earlyana, 350 bu. certified Mandarin-Ottawa.

Valparaiso — Wyckoff Hybrid Corn Co., Rt. 3, 1,200 bu. certified Earlyana, 1,300 bu. certified Richland, 3,200 bu. certified Hawkeye.

Windfall—Byron Legg & Sons, Rt. 2, 400 bu. certified Hawkeye, 300 bu. certified Lincoln.

Worthington—H. H. Sloan & Sons, 2,500 bu. certified Wabash, 1,000 bu. certified Hawkeye.

IOWA

Galva—L. J. Baxter, 1,800 bu. Iowa blue tag certified Hawkeye.

Hudson—Strayer Seed Farms, 1,000 bu. Bansei.

Iowa Falls—Leonard E. Hoffman, Rt. 1, 1,000 bu. certified Hawkeye.

Remsen—Frank Lenertz, 700 bu. certified Hawkeye, germination 95%, purity 99.61.

Sabula—Behan & Helfert, Rt. 1, 400 bu. certified Lincoln.

KANSAS

Carbondale—Lowell Chamberlin, 500 bu. certified Wabash.

MICHIGAN

Blissfield—Sam Beill, Rt. 1, 400 bu. certified Hawkeye.

MINNESOTA

Austin — Martin Bustad, 1,000 bu. Hawkeye from certified seed.

Bricelyn—Russell M. Sime, 400 bu. blue tag certified Hawkeye, germination over 90%.

Montevideo—John W. Evans, 300 bu. non-certified Capital, 150 bu. certified Ottawa-Mandarin, 500 bu. non-certified Ottawa-Mandarin.

Sleepy Eye—Henry Leitschuh, 350 bu. uncertified Korean.

Winona—Seed Growers, Inc., 1,500 bu. certified Ottawa-Mandarin.

MISSOURI

Malden—T. F. Baker, 1,400 bu. certified S-100, 1,600 bu. certified Ogden.

St. Louis—Cypress Land Farms Co., 314 Merchants Exchange, 400 bu. certified S-100, 400 bu. non-certified S-100, 400 bu. certified Ogden, 400 bu. non-certified Ralsoy, 500 bu. certified Wabash, 400 bu. certified Hawkeye, 1,000 bu. non-certified Lincoln.

NEBRASKA

Elk City—Wahlgren Seed Farms, 900 bu. certified Hawkeye.

NORTH CAROLINA

Raleigh—H. W. Davis, Hunter St., 450 bu. certified Roanoke.

OHIO

Ada—J. R. Spar & Son, Rt. 1, 1,000 bu. certified Hawkeye, 500 bu. certified Monroe.

Avery—J. Schlessman & Sons, 300 bu. certified Monroe, 1,600 bu. certified Hawkeye, 500 bu. certified Lincoln, 1,000 bu. non-certified Hawkeye, 1,000 bu. non-certified Lincoln.

Bowling Green—Henry C. Swartz, Rt. 2, 215 bu. certified Monroe.

Delphos—Lawrence W. Adam, Rt. 1, 225 bu. Ohio certified Monroe.

Springfield—Martin Gainer, Rt. 3, 400 bu. certified Hawkeye, 175 bu. certified Monroe, 100 bu. certified Lincoln.

CANADA

Muirkirk—Geo. E. Phillips, Rt. 2, Muirkirk, Ontario, 1,500 bu. registered No. 1 Canadian Capital.

In The MARKETS

MARKETS SHOW STRENGTH

After a weak start, February markets for the most part were marked by more strength and activity.

A rather sharp reversal in the downward trend in meal and soybean futures markets came the second week of the month, reflecting generally stronger commodity markets.

Some processors reported a larger movement of oil meal during midmonth than for some weeks as feed mixers became more active. At the same time some beans came out of hiding.

Supplies of 44% soybean oil meal were ample and production was heavy, though 41% was said to be somewhat scarce. The premium for screwpress meal largely disappeared during February. It was said that buyers were showing more disposition to switch to solvent process meal.

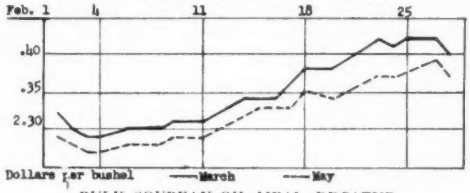
Trading in soybean oil was not heavy but the market was substantially firmer. The soybean oil futures market in New York City was unusually active.

Depressing factors were the announcement that the government is out of funds and will not be in the market for more soybean oil, and the USDA situation report that indicates an ample supply of the chief edible oils for the coming season.

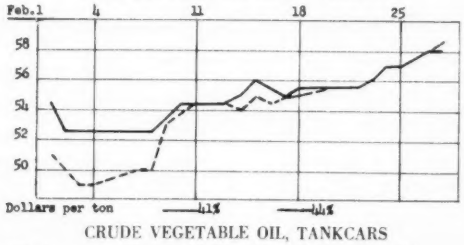
Commodity Credit Corporation purchases for the past several weeks included: Jan. 23-27, 25,376,000 lbs. of crude soybean oil; Jan. 30-Feb. 3, 9,699,000 lbs. crude soybean oil and 270,000 bu. soybeans; Feb. 6-10 144,400 bu. soybeans; and Feb. 13-17, 186,666 bu. soybeans.

Last year exports of soybeans and oil in terms of soybeans reached the record total of 65 million bushels, or about 30 percent of domestic production, according to the Office of Foreign Agricultural Relations.

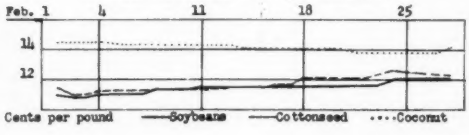
FUTURES CHICAGO NO. 2 SOYBEANS



BULK SOYBEAN OIL MEAL, DECATUR



CRUDE VEGETABLE OIL, TANKCARS



Shipments to Europe accounted for 62 precent of the soybeans exported and 90 percent of the oil.

March No. 2 soybeans, Chicago, opened for the month at $2.32, to reach a low of $2.29 Feb. 3. High was $2.42 Feb. 24. The close was $2.40.

Bulk 41% soybean oil meal, basis Decatur, opened at $54.50. Low was $52.50 Mar. 2-7. High was $58, also the close.

Crude soybean oil in tankcars opened for the month at 11c, reached a low of 10⅞c Feb. 2-3 and closed at 12c, the high.

MEMPHIS SOYBEAN OIL MEAL FUTURES CLOSINGS FEB. 28*

Decatur sacked basis, per ton: Mar., flat 62.00; May, flat 61.50; July, flat 61.25; Oct., 51.00@51.50; Dec., 49.50@50.75; Jan. 49.00@50.00. Sales: 900 tons.

NEW YORK CRUDE SOYBEAN OIL FUTURES CLOSINGS FEB. 28*

Apr., 11.50b; June, 11.15b; July, 11.08b; Aug., 10.95b; Sept., 10.85b; Dec., 9.85b; Jan. and Feb., 9.85n.
Sales: 15 contracts.
*Reported by Chicago Journal of Commerce.

● OIL MILL PRODUCTS. Reported by Bureau of Census, Department of Commerce.

SOYBEANS: RECEIPTS, CRUSHINGS AND STOCKS AT OIL MILLS, BY STATES, DECEMBER 1949—NOVEMBER 1949
(Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	Dec. 1949	Nov. 1949	Dec. 1949	Nov. 1949	Dec. 31, 1949	Nov. 30, 1949
U. S.	399,717	734,140	518,688	514,155	2,008,443	2,127,414
Arkansas	4,347	43,521	8,265	7,560	73,981	77,899
Illinois	171,488	217,868	194,501	191,936	754,904	777,917
Indiana	37,961	52,453	38,848	40,643	205,884	206,771
Iowa	60,433	98,978	96,102	97,600	280,341	316,010
Kansas	6,835	23,576	13,300	15,068	21,366	27,831
Kentucky	(*)	24,634	18,251	19,565	(*)	70,332
Minnesota	15,262	16,705	17,124	17,421	18,136	19,998
Missouri	16,328	39,836	21,964	22,617	110,151	115,787
Nebraska	(*)	8,100	5,088	4,960	(*)	20,157
N. Carolina	6,984	41,846	7,427	5,925	44,092	44,535
Ohio	43,568	88,870	65,241	63,010	283,293	304,966
Oklahoma	—	—	—	(*)	—	—
Texas	(*)	—	—	—	(*)	—
All other	36,511	77,753	32,577	27,850	216,295	145,211

*Included in "All other" to avoid disclosure of individual operations.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, DECEMBER 1949—NOVEMBER 1949

State	Crude oil (thousand pounds)				Cake and meal (tons)			
	Production		Stocks		Production		Stocks	
	Dec. 1949	Nov. 1949	Dec. 31, 1949	Nov. 30, 1949	Dec. 1949	Nov. 1949	Dec. 31, 1949	Nov. 30, 1949
U. S.	166,855	165,473	30,589	25,881	407,182	406,444	47,381	42,490
Arkansas	2,432	2,251	897	352	6,379	6,097	1,795	1,066
Illinois	64,474	63,628	8,949	6,231	146,308	144,460	10,680	10,096
Indiana	12,449	12,964	1,623	1,992	31,534	32,461	926	1,849
Iowa	31,144	31,052	6,354	5,656	78,639	80,388	5,088	5,419
Kansas	4,157	4,900	1,087	756	10,741	12,541	(*)	2,941
Kentucky	6,007	6,498	370	689	14,300	15,605	500	518
Minnesota	5,321	5,620	2,264	1,981	13,734	14,514	3,434	3,951
Missouri	6,651	6,871	1,798	1,472	18,305	18,419	1,494	1,614
Nebraska	1,502	1,520	243	406	4,313	4,164	(*)	(*)
N. Carolina	2,016	1,535	548	421	5,997	4,608	5,821	3,127
Ohio	20,788	20,332	3,581	3,943	50,591	50,607	2,588	2,619
Oklahoma	—	(*)	—	(*)	—	(*)	(*)	(*)
Texas	—	—	—	—	—	—	—	—
All other	9,914	8,302	2,875	1,983	26,341	22,580	15,055	9,290

*Included in "All other" to avoid disclosure of individual operations.

PRIMARY PRODUCTS EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS AND STOCKS, DECEMBER 1949—NOVEMBER 1949

Products	Production		Shipments and transfers		End of month stocks	
	Dec. 1949	Nov. 1949	Dec. 1949	Nov. 1949	Dec. 31, 1949	Nov. 30, 1949
SOYBEAN:						
Cake and meal†	407,182	406,444	402,291	399,846	47,381	42,490
Lecithin‡	1,004,226	1,123,679	915,552	1,038,263	996,495	907,821
Edible soy flour, full fat†	391	411	(*)	(*)	(*)	119
Edible soy flour, other†	6,549	7,481	6,382	6,703	2,300	2,133
Industrial soy flour†	(*)	(*)	(*)	(*)	(*)	(*)

*Not shown to avoid disclosure of individual operations.
† Unit of measure in tons.
‡ Unit of measure in pounds.

● SHORTENING SHIPMENTS. Reported by Institute of Shortening and Edible Oils, Inc., in pounds.

Week ending Jan. 28	5,988,939
Week ending Feb. 4	4,793,630
Week ending Feb. 11	7,054,335
Week ending Feb. 18	6,056,194

● SOYBEAN STOCKS. Production and Marketing Administration's commercial grain stock reports for February.

	Feb. 7	Feb. 14	Feb. 21	Feb. 28
Atlantic Coast	1,225	1,216	1,122	1,121
Gulf Coast	751	751	714	398
Northwestern and Upper Lake	866	830	747	728
Lower Lake	5,631	5,697	5,065	5,557
East Central	2,451	2,370	2,322	2,252
West Central, Southwestern and Western	2,305	2,423	2,300	1,995
Total current week	13,229	13,287	12,270	12,051
Total Year ago	11,248	10,674	10,397	9,973

About 180 million bushels of soybeans were stored in all positions on Jan. 1, according to reports collated by the Bureau of Agricultural Economics. These stocks are nearly as large as the record of 183 million bushels on Jan. 1, 1949 and more than a fourth larger than on January 1, 1948.

STOCKS OF SOYBEANS, JANUARY 1, 1950, WITH COMPARISONS

Position	Reported by	Jan. 1, 1948	Jan. 1, 1949	Oct. 1, 1949	Jan. 1, 1950
		Thousand Bushels			
On Farms	Crop Reporting Board	51,679	75,504	2,147	61,908
Terminals	Grain Branch, P.M.A.	13,294	14,804	462	16,133
Processing Plants	Bureau of the Census	48,900	55,564	* 285	66,948
Int. Mills, Elev. & Whses.†	Crop Reporting Board	28,080	36,805	213	35,117
TOTAL		141,953	182,677	3,107	180,106

* Adjusted to stocks of **old** soybeans, from reported total of 10,606,000 bushels.
† All Off-farm storages not otherwise designated.

OFF-FARM* STOCKS OF SOYBEANS, JANUARY 1, 1950, WITH COMPARISONS

States	Jan. 1, 1949	†Oct. 1, 1949	Jan. 1, 1950	States	Jan. 1, 1949	†Oct. 1, 1949	Jan. 1, 1950
	Thousand bushels				Thousand bushels		
Ohio	9,230	138	14,683	Kans.	545	1	2,280
Ind.	9,968	27	10,770	N. C.	875	1	1,526
Ill.	38,956	59	45,457	Ky.	2,764	1	3,093
Minn.	6,253	37	4,607	Ark.	1,791	1	2,561
Iowa	17,586	219	17,337	All other	14,085	234	9,296
Mo.	5,120	242	6,588	U. S.	107,173	960	118,198

* Includes stocks at processing plants, as enumerated by the Bureau of the Census; commercial stocks at terminals, reported by the Grain Branch, P.M.A.; and stocks in interior mills, elevators and warehouses, estimated by the Crop Reporting Board.
† Adjusted to stocks of **old** soybeans only.

Soybeans: Quantities for which Government Purchase Agreements were made, in specified States and the United States, crops of 1948 and 1949*

Crop Year	Ill.	Iowa	Ind.	Ohio	Mo.	Minn.	Other States	United States
	Bushels							
1948	1,536,056	1,524,308	222,222	55,690	103,975	570,643	52,516	4,065,410
1949**	460,369	236,927	58,086	33,263	67,273	73,873	44,346	974,137

*Under terms of these agreements the Commodity Credit Corporation agreed to purchase from each guarantee a quantity of soybeans, not to exceed a specified quantity, at the announced support price per bushel, within the time period of the contract, at the option of the guarantee.
**As of Dec. 31, 1949. Some additional quantities were covered by purchase agreements before the closing date, January 31, 1950.
Source of data: Production and Marketing Administration, U. S. Dept. of Agriculture.

● PROCESS METHOD. The U. S. Department of Agriculture, through information obtained from the Bureau of the Census, has reported the quantity of soybeans processed by each of the three methods—screw press, solvent extraction, and hydraulic press—during the crop year, Oct. 1, 1948, to Sept. 30, 1949, along with similar data for earlier years.

The report, prepared by the Production and Marketing Administration, shows that of the 133.7 million bushels of soybeans processed during the crop year 1948-49, 101.5 million or slightly more than 55 percent were by the screw press method. Processings by solvent extraction accounted to 72.8 million bushels or approximately 40 percent of the total. About 9.4 million bushels or 5 percent of the total were by the hydraulic press method.

Department officials pointed out that "soybeans crushed" for 1946-47, 1947-48, and 1948-49 and "crude oil produced" for 1947-48 and 1948-49 differ somewhat

from figures previously reported by the Bureau of the Census. These differences arise from differences in the survey reports from some processors as compared with regular monthly reports made to the Census.

Soybeans: Quantities Crushed by Types of Processing Equipment, Crop Years 1945-48; Oil Produced and Oil Yield Per Bushel for Each Process, Crop Years 1947 and 1948.

Soybeans Crushed

Oct. 1-Sept. 30 Crop Year	Screw Press Process		Solvent Extraction		Hydraulic Press Process		Total
	1,000 bu.	Percent of Total	1,000 bu.	Percent of Total	1,000 bu.	Percent of Total	1,000 bu.
1945-46	102,442	64.2	44,907	28.2	12,111	7.6	159,460
1946-47	108,744	63.9	45,224	26.6	16,271	9.5	170,239
1947-48	88,233	54.4	61,000	37.6	12,933	8.0	162,166
1948-49	101,535	55.3	72,773	39.6	9,351	5.1	183,659

Crude Oil Produced

	1,000 lbs.	Percent of total	1,000 lbs.	Percent of total	1,000 lbs	Percent of total	1,000 lbs.
1947-48	782,135	50.7	650,629	42.2	109,362	7.1	1,542,126
1948-49	929,778	51.4	795,964	44.1	81,111	4.5	1,806,853

Oil Yield Per Bushel

	Pounds	Pounds	Pounds	Pounds (Average for crop)
1947-48	8.86	10.67	8.46	9.51
1948-49	9.16	10.94	8.67	9.84

Compiled from data collected by the Bureau of the Census.

● SOYBEAN CRUSHINGS. Crushings of soybeans the first quarter of the 1949-50 season were the largest of record and totaled 52 million bushels, reports Production and Marketing Administration. Because of the heavy crushings, stocks of soybeans on Jan. 1 were somewhat smaller than the record stocks of Jan. 1, 1949.

Large supplies of soybeans and a good export and domestic demand for oil resulted in the largest crushings of soybeans of record. Crushings as reported by the Census Bureau totaled almost 52 million bushels in the October-December quarter this season. This is more than 5 million bushels larger than during the same quarter a year ago.

Distribution and stock data on soybeans for the first quarter of the 1949-50 season are somewhat confused in that accounted-for disappearance during the quarter plus estimated stocks at the close of the period exceeded estimated supplies by over 11 million bushels. Supplies for the quarter consisting of the crop and carry-over totaled 225.4 million bushels on the basis of the Dec. 1 estimate of production. Exports and crushings amounted to 56.8 million bushels leaving 168.6 million for feed during the quarter or carry-over Jan. 1. Stocks in all positions Jan. 1 however were estimated at over 180 million which suggests an over-estimate of stocks Jan. 1 or an under-estimate of 12 or more million bushels in production.

● FACTORY USE SOYBEAN OIL. Total factory consumption of crude soybean oil in December was 128,529,000 lbs. Of this amount, 2,956,000 lbs. found uses other than refining.

Consumption of refined soybean oil in December totaled 104,727,000 lbs. Of this amount, 26,831,000 lbs. went into hydrogenation; 52,000 lbs. in sulphonation; 3,826,000 lbs. in deodorizing (whole oil).

Inedible products of crude soybean oil in December: soap 50,000 lbs.; paint and varnish 242,000 lbs.; lubricants and greases 16,000 lbs.; other 1,227,000 lbs.

Edible products of refined soybean oil in December: shortening 51,187,000 lbs.; other 1,804,000 lbs. Inedible products: soaps 61,000 lbs.; paint and varnish 6,714,000 lbs.; lubricants and greases 18,000 lbs.; linoleum and oilcloth 2,706,000 lbs.; other 4,981,000 lbs.

Edible products of edible hydrogenated soybean oil for December: shortening 8,442,000 lbs.; margarine 17,737,000 lbs.; other 196,000 lbs.

Usage of refined soybean oil in margarine is not shown separately.

NEW STANDARDS MEAN LOWER PRICE

To the Editor:

Your editorial "Careful Grower is Penalized" on page four of the January issue of the "Digest" is about the nearest correct treatise I have seen on the new soybean grades.

Some of us appeared at the hearings and pled for an allowable of 2 percent on foreign material but some of the organizations felt they were serving the farmers best by fighting for 3 percent allowable. The objections came principally from some of the farmers in Iowa and Indiana along with the Farmers Grain Dealers Association of Illinois.

Do not believe the processors have yet realized the amount of foreign material they are receiving as beans but will probably find out before the season is over.

The same applies to moisture as the No. 2 grade should not be over 13 percent. Most corn does not come in at 15.5 moisture which is No. 2 grade but the farmer should certainly want the price based on 15.5 moisture.

As a grower of soybeans I cannot secure the proper price for my soybeans as a processor must base his price on the lower portion of the grade.

For years the farmers' representatives have clamored for a premium for good beans but their representatives have continually fought for lenient grades that serve the poor farmer and penalize the good one.

In order to change grades hearings must be held and grades published for 90 days before they become effective. Washington also takes plenty of time after hearings to make decisions. It is none too early to appeal for a change.—*H. J. Kapp, vice president, manager grain department, A. E. Staley Manufacturing Co., Decatur, Ill.*

Will Bid Lower

To the Editor:

I have always contended that every time grade standards were lowered, the careful farmer got the penalty. This was true of split soybeans which while not a serious matter in processing operations, does mark the difference between the farmer who carefully adjusts his combine and the one who just lets her run. Careful adjustment to prevent splits is essential to avoid wasting soybeans.

As to our experience on foreign material—it is a matter of shippers. We have one shipper whose cars the last two months have definitely been built up to as close to 3 percent as possible. We have another shipper who gives us beans running 4 percent to 6 percent foreign material, but this is due to lack of cleaning facilities—and not care enough with farmers when delivery is in progress.

On a percentage basis our carloads show the following:

Fgn. Mtrl.	Oct.	Nov.	Dec.	Jan. 15
Under 1%	47%	40%	18%	12%
1% to 2%	24%	22%	35%	50%
2% to 3%	16%	16%	27%	33%
Over 3%	13%	22%	18%	5%

Nothing very conclusive here except the marked drop in percentage of cars showing less than 1 percent foreign material as the season advances. Without doubt the October cars represent a true picture of the way soybeans were received by elevators, as they had neither the time nor the space to do any blending in of other material. After the rush of harvesting was over, the percentage drops sharply, which proves the point on blending in other materials. This is even more pronounced than the above percentages indicate, as we all know that the better quality soybeans are retained both on the farm and the elevator if and when any are held back.

If the present 3 percent foreign material is continued, it means we will bid 2 percent less for soybeans than we would if we could feel sure most of our cars would run around 1 percent foreign material, instead of a possible 2.9 percent. *E. F. "Soybean" Johnson, assistant manager Delphos Grain & Soya Products Co., Delphos, Ohio.*

Must Be Corrected

To the Editor:

I thought your editorial titled, "Careful Grower is Penalized" (January) was a dandy and spoke the truth. There is no question but what the change made in the U. S. Standards for Soybeans last Sept. 1 was a mistake and in particular it was a definite mistake to increase the maximum foreign material in the four grades by 1 percent each.

The result has been to secure a premium for the farmer who does a poor job of growing a crop of soybeans and at the same time it penalizes the farmer who is trying to do a good job of growing a crop of soybeans. It seems to me the present standards have just the opposite effect of the job they are intended to do. During the very early part of the movement of soybeans from the crop harvested this last fall the difference in foreign material as against foreign material from the previous crop was not too great; but as we progressed further into the movement the amount of foreign material increased steadily.

There is no question in my mind but that many shippers deliberately loaded foreign material right up to the maximum allowed. It is surprising the number of shipments which have arrived at our plant showing exactly the maximum of 3 percent foreign material and I think that before the year is over many processors are going to be surprised at the amount of foreign material which was paid for at soybean prices. Our own experience has been that based on averages the foreign material in shipments under the new standards are running about ¾ of 1 percent more than the soybeans which were received under the old standards. Please understand that this is an average and we have received many, many cars of soybeans which graded 3 percent foreign material and in many cases much more than 3 percent.

We think, of course, that this is something which must be corrected and I trust that something will be worked out whereby we can get it changed in the standards effective before the new crop moves.—*F. E. Benson, vice president, Archer-Daniels-Midland Co., Minneapolis, Minn.*

Too Many Beans in '50

To the Editor:

I only planted 5 acres last year but had a very unusual yield of 45 bushels per acre.

Can you believe this? A neighbor told me of a field of 80 acres that averaged 55 bushels.

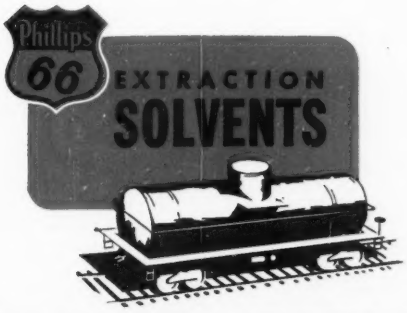
I feel that the corn allotment will influence an increase in the bean acreage which will naturally mean too many beans in the event of a favorable season.

We had our first experience with corn borer damage in '48 which is causing considerable concern for the future. It makes me want to switch to potatoes, as I read in the papers the government is buying them and then giving them back to you. Some set up.—*E. W. Trachsel, Helena, Mo.*

LETTERS

PLANT OPERATION MADE EASY!

All right . . . so you'll *never* be able to run a solvent extraction plant just by pushing buttons. But you *can* save yourself plenty of trouble by using Phillips *66* Solvents. Always uniform, Phillips *66* Solvents eliminate the need for many frequent adjustments in your system.



The narrow boiling range of Phillips *66* Solvents results in greater economy . . . improved quality. No light ends to lose! No solvent residue left in the meal! And you can depend on Phillips for reliable, *prompt* delivery!

Write us for information on Phillips *66* Successful Solvents for soybean, cottonseed, flaxseed, tung nut, rice bran, corn germ, castor bean, alfalfa, animal fat and other oil extraction industries.

Typical Boiling Range

Normal Hexane	151-156 F
Methylpentanes	139-145 F
Normal Heptane	203-209 F

PHILLIPS PETROLEUM COMPANY

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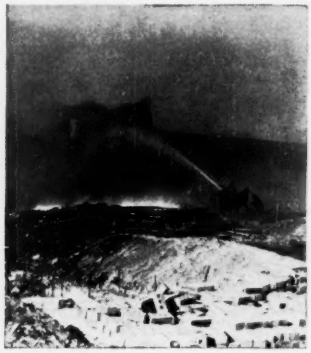
C

FIRE STRUCK HARD

AT THIS FEED AND GRAIN PRODUCTS COMPANY

Early Sunday morning, October 17, 1948, fire struck the plant of Schafer Feed and Grain Products, Galesburg, Ill. It is believed that the blaze started at the top of the elevator shaft, spreading rapidly to consume everything except the Butler Bolted Steel Grain Tanks and the grain stored in them. Here are shown actual news photographs taken at the time of the disastrous fire.

A RAGING INFERNO. The main plant is blacked out by dense smoke as firemen battle the flames. A Butler Bolted Steel Grain Tank (upper left) protects the stored grain.



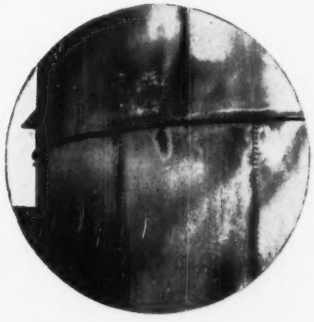
TOTAL DESTRUCTION OF WOOD STRUCTURES, Blackened shells of main plant testify to the destructiveness of the fire which was so intense that telephone poles at some distance from main conflagration were set afire (upper right). At the height of the fire, Butler Tanks were almost completely enveloped by the flames.

. . . but Couldn't Get To The Stored Grain

AFTERMATH OF FIRE is shown in photograph at left. Butler Grain Tanks stand virtually unscathed amid ruins of plant. Nearly all the grain stored in these tanks was still marketable in spite of intense heat and flood of water which was constantly directed at tanks during fire.

CLOSE-UP (right) of Butler Bolted Steel Grain Tank reveals only minor damage to tanks in fire which completely destroyed all other structures.

PROTECT Your Grain in fire-safe Butler Bolted Steel Grain Tanks. Mail coupon today for complete information.



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